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(71) Applicant: HOGAN SYSTEMS, INC. [US/US]; 5080 Spectrum Drive, Dallas, TX 75248 (US).

(72) Inventors: WAINSCOTT, Charles, R.; 1020 Mayberry Court, Copper Canyon, TX 75067 (US). FERGUSON, Sheila, D.; 18019 Windflower Way, Dallas, TX 75252 (US). HAWKINS, Gery, E.; 2901 Woodbridge, Bedford, TX 76021 (US). REITER, Steven, W.; 15417 Preston #1150, Dallas, TX 75248 (US). SALISBURY, Shirley; 1056 Jones Road, Irmo, SC 29063 (US). STANCIUS, Veronika; 13891 Brookgreen Drive, Dallas, TX 75240 (US). TIETZ, Matthew, R.; 2629 Barrington Drive, Plano, TX 75093 (US). YUCHS, Jane, L.; 1412 Iowa Drive, Plano, TX 75093 (US).

(74) Agent: MILLS, Jerry, W.; Baker & Botts, L.L.P., 2001 Ross Avenue, Dallas, TX 75201-2980 (US).

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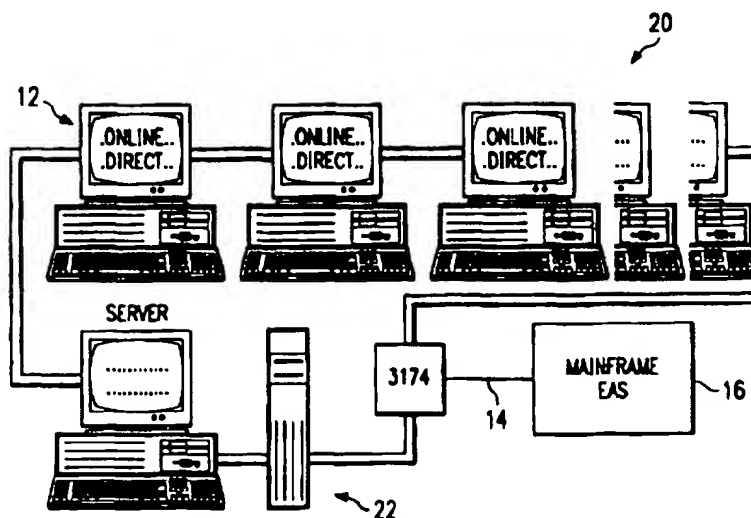
(57) Abstract

An electronic budgeting and planning system (20) for use in a data processing system having a plurality of instructive work stations (12) for providing budgeting and planning information and decision tools for managing a financial institution. The method includes the steps and the system includes the necessary structure for extracting a plurality of budgeting policies from a plurality of external budgeting policy external sources and configuring a budgeting and planning data structure in accordance with the plurality of budgeting policies. The method and system extract a plurality of financial account data sets relating to financial accounts from a plurality of financial account data set sources and populate the budgeting and planning data structure with the extracted plurality of financial account data sets. Modifying the populated budgeting and planning data structure is also performed to refine the populated budgeting and planning data structure for creating a final budgeting and planning data structure. The system (20) supports distribution of the final budgeting and planning data structure to the plurality of interactive workstations (12).

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METHOD OF AND SYSTEM FOR FINANCIAL
INSTITUTION BUDGETING AND PLANNING

TECHNICAL FIELD OF THE INVENTION

The present invention relates to a method of and
system for budgeting and planning in a financial
5   institution and, more particularly, to an electronic
budgeting and planning system for use in a data
processing system having a plurality of instructive
workstations and that provides budgeting and planning
information and decision tools for managing a financial
10   institution.

BACKGROUND OF THE INVENTION

Defining the direction of an institution is a fundamental requirement of good management. Adopting a formal planning process positions the bank to take advantage of opportunities presented by the dynamic banking environment. Increasingly, effective budgeting is recognized as a critical component of the planning process.

Ideally, the institution's budget should incorporate the detailed financial goals that must be attained in order to achieve the institution's strategic objectives. The budget should also provide a monitoring mechanism to measure the actual performance of the institution compared to established goals.

Today, banks use a variety of tools to prepare budgets including the general ledger, spreadsheets, asset/liability planning systems, modeling languages, and manual input forms. The budgeting and planning process that banks currently use is labor intensive, costly, time consuming, difficult and inflexible. The results are not satisfactory to most bank supervisors and managers. It is not reflective of real business, cost center oriented, out-of-date when completed, not credible, and inappropriate detail.

A budgeting and planning system needs to define the business for budgeting purposes in flexible, user-defined ways. For example, a system for this purpose should permit budgeting and planing by organization, product, and customer. It should provide the ability to budget at varying levels of detail, and to change margin assumptions by organization, product, and customer. Such a system should permit the use of alternate versions of budgets and plans. There is a genuine need for a system that improves the budgeting and planning process by being easy to use and permitting rapid turnaround of budget

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consolidations and easy updates of forecasts based upon
new actual data. Moreover, such a system should permit
continuous budgeting. Financial institutions desire a
budgeting system that facilitates top-down and bottom-up
5   budgeting to support centralized control of the planning
process, ownership control, allocations, and interest
rate forecasts. At the same time, there is a need for a
system that provides decentralized execution of budget
unit plans for volumes, revenues, direct expenses, etc.
10   A need exists for a system that ensures
completeness, integrity, and accuracy of budget and plan
data, including, for example, ensuring a truly balanced
balance sheet, providing detail reports that support
budgeting for intercompany transfers and allocations,
15   permitting cost transfers using standard unit costs or
allocations, and supporting spreadsheet uploads and
downloads of budgeting and planning data.

SUMMARY OF THE INVENTION

The present invention provides an electronic budgeting and planning system for use in a data processing system having a plurality of instructive workstations and that provides budgeting and planning information and decision tools to support annual budgets, short-term forecasts, and long-term planning. The present invention includes three major processes involved in preparing a budget and plan. A first such process is the population of an initial working budget and updated forecast. This process establishes the basic assumptions and rules to reflect the bank's budgeting policies and strategic plans. The population process also provides historical actual data, input from other budgets, and other external data that will be used as a foundation for the initial budget or updated forecast. This process also creates the initial budget based on the input data and various assumptions of future changes and growth policy guidelines.

Finalization of the budget and periodic updates of the forecast is another process that the present invention performs. The finalization process allows budget unit managers to modify the initial budget data to reflect their business needs and goals. This process also involves receiving and consolidating input, allocating expenses, balancing the bank budget, and then sending budget information back to budget unit managers for further refinement. Finalization also includes finalizing the budget and updating periodic reforecasts based upon new actuals.

Distribution of budget and plan information is a third process of the present invention involving reporting budgets via on-line viewing, spreadsheet downloads, and/or hard copy and providing budgets to a profitability system for reporting budget to actual

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results through the year. The distribution process also
provides periodic updates as plans or forecasts to the
profitability system.

   The budget and planning method and system of the
present invention provides a comprehensive solution to
the budgeting and planning needs of a large bank. As a
single system solution, it provides full functionality
for budgeting and planning and includes end-user PC
access and local budgeting. Multidimensional budgeting
for organization, product and customer, as well as multi-
year planning with bank-defined variable time periods
(month, quarter, etc.) are attractive features of the
present invention. The present system uses security
defined by the bank or financial institution to control
access to data and budget rules. Moreover, the method
and system accommodate bottom-up and top-down input,
supporting any desired level of budgeting or planning
detail.

   The budget and planning system of the present
invention is a cooperative processing system that
combines the power and control of the host computer for
data collection and storage, with the ease of use of PCS
in a Microsoft Window or OS/2 client server environment
for budgeting, planning, and analysis.

   For the population process of the present invention,
there are three components. One component, the budget
configuration component, permits entering all of the
budget policies of the bank, as well as growth and change
assumptions, definitions, hierarchies, dates, and rules
for budgeting. The data staging facility/translation
control component ensures historical data from all
external sources is consistent with various definitions
and parameters to be used for budgeting. The budget
population process populates an initial working budget
based on budget configuration assumptions applied against

historical actuals, data from other budgets, and data from other external data bases. Thirdly, if the bank uses the Earnings Analysis System ("EAS") from Hogan Systems, Inc. of Dallas, Texas, or a similar

5   profitability system, the budget population process of the present invention provides a direct feed of EAS historical actual data into the present system.

For the finalization process of the present invention, there are four components. A budget

10   modification component provides a distributed facility to perform what is normally thought of as "budgeting" (i.e., expense projections, volume forecasts, run-off assumptions, etc.) and supports iterative budget changes. A revenue and expense transfer component, secondly,

15   executes the various allocations and transfer rules against budget data (e.g., cost allocations, equity allocations, etc.). A third component, called auxiliary support, includes various utilities for copying, moving, and deleting budgets, and security controls. Lastly, a

20   budget and planning system or BPS ledger component holds the results of all versions and iterations of the budget, as well as plans and forecasts to serve as the principal budgeting and planning database.

The distribution process of the present invention

25   has two components. Budget Reporting is one facility that handles requests and on-line batch delivery, as well as spreadsheet download of budget reports. Secondly, an EAS link feeds budget amounts to EAS or a similar profitability system to report actuals against budget.

30   A technical advantage that the budget and planning method and system of the present invention provides is an extremely powerful application, through three aspects that form the foundations of its power. The first foundation is the multidimensional hierarchies that the

35   system provides. The power of the multidimensional

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hierarchies in the present budget and planning system
becomes apparent to banks that wish to budget and plan
their business in ways other than by traditional cost
centers. The present budget and planning system allows a
bank to establish separate organization, product, and
customer hierarchies at any level of detail and breadth.
This enables the bank to budget by any combination of
organization unit, product, line of business, customer,
customer segment, etc. Multidimensional hierarchies can
also be used to apply formulas, growth rate assumptions,
and other calculations to hierarchy points with automatic
cascading to lower levels. Hierarchies also allow the
bank to establish varying levels of budgeting
responsibility. With the present method and system,
lower levels may easily roll to higher levels of
responsibility.

Another technical advantage of the budget and
planning method and system is a comprehensive way to
efficiently integrate input from managers, while ensuring
consistency and integrity of the results. It is also
very flexible to ensure that budgets reflect actual
business conditions and can be adjusted as necessary.
Within the system are all the features and functions
necessary to create a multi-year budget and plan from the
top-down or bottom-up as may be desired.

Yet another technical advantage of the present
budget and planning system is that it also enables a bank
to receive the input of managers closest to the business,
while at the same time support central control and
coordination of the budgeting and planning processes.
With the budget and planning system of the present
invention, a bank realizes significant benefits in the
budgeting process, such as lower cost, less time, ease of
use, improved control, and distributed operations. In
addition, better results come from the budgeting process,

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such as budgets that reflect the real business, and that
include multidimensional budgets such as organization,
product, customer budgets, with timely processing, and
credible output.

5   Still another technical advantage of the present
budget and planning method and system is that it provides
a bank with new ways of using budgets, such as continuous
budgeting, service level agreement support, and resource
allocation based on forecasted return on equity.

10   The present invention, therefore, provides a wide
variety of features and functions relating to the
budgeting and planning processes of a financial
institution. The following description provides details
of the various embodiments of the present invention which

15   is recited in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the present
invention and the advantages thereof, reference is now
made to the following description which is to be taken in
conjunction with the accompanying drawings in which like
reference numerals indicate like features and wherein:

FIGUREs 1 and 2 show possible configurations for
operating the system and performing the method steps of
the present embodiment;

FIGURE 3 shows functional blocks that depict the
cycle of budget development as four phases for the
present embodiment;

FIGURE 4 shows one example of a windows interface
that the present embodiment employs;

FIGURE 5 illustrates how the present embodiment may
also provide numerous icons for communicating with the
system of the present embodiment;

FIGURE 6 shows certain aspects of the revenue and
expense transfer functions of the present embodiment;

FIGURE 7 shows a flow diagram that depicts the
conceptual design of the system of the present
embodiment;

FIGURE 8 illustrates a hierarchy example typical of
one usable with the method and system of the present
embodiment;

FIGURE 9 illustrates an example of the hierarchy
point assignment feature of the present embodiment;

FIGURE 10 shows a flow diagram depicting the
relationships and operation of budget configuration
module;

FIGURE 11 shows processing flow for the budget
update module of the present embodiment;

FIGURE 12 shows a budget population flow diagram of
the present embodiment;

FIGURE 13 shows a budget modification phase flow diagram for the present embodiment;

FIGURE 14 shows a flow diagram for depicting the operation of the present embodiment during budget modification through spreadsheets;

FIGURE 15 shows a revenue and expense transfer program flow chart of the present embodiment;

FIGURE 16 shows the processing flow diagram for the budget distribution function of the present embodiment;

FIGURE 17 shows and example of an organization balance sheet that the present embodiment provides for viewing and printing real time report requests; and

FIGURE 18 shows the auxiliary support facility functions associated with the present embodiment.

DETAILED DESCRIPTION OF THE INVENTION

FIGUREs 1 and 2 show possible configurations for operating the system of the present embodiment. On-line components of the present system may be designed to run on a personal computer coupled to a mainframe hardware configuration. Configuration 10 of FIGURE 1 shows personal computer 12 associated via network 14 with mainframe computer 16. Alternatively, as FIGURE 2 illustrates, configuration 20 permits practicing the method and system with mainframe computer system 16 which communicates via network server 22 to numerous personal computers 12. In either configuration, users employ communication link 14 between the personal computers 12 and mainframe 16. Configuration 20 of FIGURE 2 illustrates the local area network option for practicing the present invention, which provides for easy administration because only one copy of the instruction set and data structures for the present invention are required to service multiple workstations.

Within this context, FIGURE 3 shows functional blocks 30 that depict the cycle of budget development as four phases. In particular, the budget cycle that the present embodiment performs includes configuration phase 32, population phase 34, modification phase 36, and distribution phase 38. All of these phases are performed by workstation 12 according to the configurations described in FIGUREs 1 and 2.

Budget configuration phase 32 is the first phase in budgeting cycle 30. In budget configuration phase 32, basic decisions are documented that are made early in the development of a budget of strategic plan. Decisions typically established in budget configuration phase 32 include basic assumptions and rules to reflect a bank's policies and strategic plans. In addition, the duration of the budget and its dimensions and level of detail are

specified at this phase. Rate assumptions, equations to compute interest and funding amounts, and relationships between amounts are specified and planned.

Budget population phase 34 represents the
5   establishment of initial budget values. During budget population phase 34, growth and change assumptions are determined, and historical data is provided as the foundation for an initial budget. Data is modified in preparation for general distribution to unit, product, or
10   segment managers. Budget modification phase 36 is typically the most time consuming and iterative of the budget cycle 30 phases. During budget modification phase 36, the budget is continually refined until finalized and approved. Commonly, the initial budget is sent to
15   managers for updates reflecting their business needs and goals. Then, input is consolidated, expenses are allocated, the budget is balanced, and the budget is sent to managers for further refinement.

In budget modification phase 36, several such
20   iterations may occur. Modification may be restricted to levels specified by the institutions such as central staff, regional planners, and/or cost center or product managers. Ultimately, a budget is finalized. As actual results become available, the budget is periodically
25   updated and forecasted.

Budget distribution phase 38 represents the final phase in the budgeting cycle and includes the release of budget information. Reports are generated and the finalized budget is unloaded to the profitability system
30   to measure actuals against budget. With the present embodiment, the development of a budget is an iterative process in which functions associated with one phase may occur repeatedly in another phase. For example, rate assumptions are established during budget configuration.

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However, these rates may be modified during the budget
population and modification phases.

Budget cycle 30 may be viewed as a continuous
process. As actual information becomes available, the
budget is periodically updated and budget cycle 30 begins
again. Forecasts are formulated based on actual results
and future budget amounts are adjusted to reflect the
most recent change in events.

The present embodiment of the invention may be
considered as part of a family of systems that uses a
graphical user interface (GUI) on a personal computer to
provide on-line functionality for establishing and
maintaining the framework and rules governing an earnings
analysis system as described in U.S. Patent Application
Serial No. 08/148,671 which is here incorporated by
reference, the system of the present embodiment and a
credit risk system described in U.S. Patent Application
(Baker & Botts No. 18921-0125) processing. The GUI
allows the user to interact with graphical elements on
the window using either the keyboard or mouse.

Although there may be many types of GUIs that work
well with the system of the present embodiment, FIGURE 4
shows one example of a windows interface that the present
embodiment employs. In particular, ledger detail
graphical user interface 40 permits the restriction and
definition of various aspects of employing the present
budgeting planning method and system. In particular,
budget identifier field 44 may receive a unique budget
identifier. Company identifier field 46 may receive the
company identifier of the organization. Product
identifier field 48 permits input of a valid product
identifier for budgeting. Amount identifier field 50 may
receive an amount identifier. Unit identifier field 52
may receive a unit identifier. Customer identifier field
54 receives a customer identifier. Starting year field

56 accepts a year figure for the first year of a
particular budget. In the preferred embodiment, this
budget year must be a valid year for a pre-specified
reporting period. Other fields within ledger detail GUI
5   40 may operate as indicated in FIGURE 4. Ledger detail
GUI displays budget amounts, therefore, for a specified
company, unit, product, customer, and account. This list
of amount identifiers displayed in ledger detail GUI 40
may be limited by selecting a specific category of
10 amounts in category field 58. The list may also be
limited by entering a value in amount identifier field 50
which displays the specified amount identifier. Note, if
there is a restriction on the field for budget identifier
44, only individuals assigned to the appropriate rule
15 (e.g., as defined by an associated security system) may
maintain the ledger rows within the restricted periods.

FIGURE 5 illustrates how the present embodiment may
also provide numerous icons for communicating with the
system of the present embodiment. In particular, the
20 method and system of the present embodiment may include
an icon for each primary window or GUI for operating the
present embodiment. For example, in FIGURE 5, budget and
planning window 60 includes ledger detail icon 62.
Ledger detail icon 62 if activated using a mouse or other
25 input device, in addition as FIGURE 6 shows for the
revenue and expense transfer functions as described in
U.S. Patent Application Serial No. 08/148,671 and further
described below. Menu window 70 provides the ability to
activate the functions of the revenue and expense
30 transfer module. These functions are available both to
the budget and planning system of the present embodiment,
as well as the earnings and analysis system. Therefore,
a separate transfers window 70 is appropriate. To
initiate a function, a user selects the appropriate menu
35 window and then selects the appropriate icon. The

following discussion details the operations of the
present embodiment and the associated data structures and
functions that occur in response to these selections to
illustrate the operations that the present embodiment
performs for budgeting and planning purposes.

FIGURE 7 shows flow diagram 80 that depicts the
conceptual design of the system of the present
embodiment. In particular, source applications 82
generally represents that the present system provide data
from the present budget and planning system for recurring
budgets, from a data staging facility 86 as described in
the EAS patent application, from the EAS system 88, as
well as from other types of source applications 90
provide inputs to extract process 92. Optionally,
translation control module 94 translates data from
extract process 92. Budget population module 96 receives
input from extract process 92 and, if appropriate,
translation control module 94. Budget population module
96 receives input from budget configuration module 98.
For budget population module 96, input goes to budget and
planning system ledger 100. Budget and planning system
ledger 100 communicates with revenue and expense transfer
systems 102 and budget modification module 104. Output
from budget and planning system ledger 100 goes to budget
distribution module 106 and provides a release to EAS
ledger update facility 108.

With more detailed attention to the various
components of FIGURE 7, Data staging facility 86 and
earnings analysis system 88 may provide data to extract
process 92, however, through EAS 88 or the present budget
and planning system 84, on-line selection criteria also
may be specified. The data from source applications
other than EAS, the present budget and planning system,
or data staging facility 86 may include a general ledger,
salary planning information or data from fixed asset

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systems. Through extract process 92, data is formatted in a standard format for the present system. Translation control module 94 provides identifiers for company, unit, product, customer, and amount level data. The

5   identifiers are assigned to extracted data based on user-defined translations. For example, foreign currency amounts are translated in translation control module 94 to a base equivalent. Also, translation exceptions are reported for audit control or correction. Furthermore,

10   translation control module 94 assigns default identifiers for untranslatable data.

       Budget configuration module 98 may define an unlimited number of budgets that may span, for example, 1 to 5 years with the present embodiment. In budget

15   configuration module 98, monthly, quarterly, semi-annual, and annual intervals are supported. Intervals may also vary from year to year. For example, year 1 may be divided into 12 intervals while years 2 through 5 are divided into four quarters. Budget configuration module

20   98 also defines organization, product, customer, and amount hierarchies as well as defines access restrictions. Moreover, rates, net interest margin equations, and formulas are defined by budget configuration module 98 to automatically compute amounts.

25   Budget population module 96 provides extract process 92 which is a powerful selection facility to specify data to be extracted for EAS or the budget and planning system of the present embodiment. Selection criteria may range from general selection to pinpointing specific

30   identifiers. Ledger population module 96 may perform roll-up along hierarchy lines to consolidate actual data to the desired budgeting levels. Direct move, period over-period, and consecutive interval population methods, as those terms are described herein, are also supported.

35   Different annualization methods may be specified for

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interval conversion. Extracted data is received for
various resources and budget population module 96. Also,
interval conversion is performed when necessary to
consolidate or expand reporting periods. In budget

5   population module 96, growth assumptions are defined and
applied to extracted data and the budget is populated
with initial values. Moreover, new business is computed
based on existing balances and user-defined target
balances.

10   The present budget and planning system provides
several budget population techniques used in the
projection of current and planning year budget values.
The budget population process if further enhanced by the
ability to apply growth assumptions that increase or

15   decrease extracted balances by fixed amounts or
percentages. Once the initial values are populated, the
budget is available for modification.

During the operation of budget configuration module
98, a budget profile is established to define the

20   characteristics of a budget. The budget profile also
provides the ability to select or define the
organization, product, and customer hierarchies to be
used in the budget process. Facilities are provided to
define interest rate scenarios, to compute interest and

25   funding amounts with equations, to budget amounts linked
with specific formulas, and restrict access to the
budget.

Historical information to provide the foundation for
budget development can be extracted from EAS, from other

30   budgets within the present budget and planning system, or
provided from other source systems such as general
ledger, salary planning, or fixed assets.

Budget data can be manipulated on-line using BPS
workstations or off-line through Lotus 1-2-3® or

35   Microsoft Excel® spreadsheets. Calculation of interest,

funding amounts, and amounts tied to formulas can be
performed on-line or in batch.   Funding center offsets
are created and, if desired, entries are created to
balance the budget balance sheet for each company and
5   posted to user-defined identifiers.

BPS ledger module 100 is a primary source of the
present system's power and flexibility.   For example,
using BPS ledger module 100, budget data is stored in a
series of entries in a table.   Each entry in the table is
10   related to a specific budget identifier.   Each entry in
the table contains from one to twelve amounts, depending
upon the interval defined for the budget year.   With BPS
ledger module 100, each entry is identified as either
monetary or statistical.   Each entry identifier includes
15   the budget identifier to which the entry applies, the
year to which the entry applies, the company identifier
to which the amount is assigned, and the unit identifier
of the organization within the company to which the
amount is assigned.   In addition, each entry identifier
20   includes a product identifier of the product and the
customer identifier of the customer to which the amount
is assigned.   The amount identifier that describes the
amount relates the amount to a description line used in
reporting.   Note that all identifiers are provided for
25   each entry to BPS ledger module 100.

Budget modification module 104 provides on-line
facilities for budget modification through a workstation
such as workstation 12 of FIGUREs 1 through 3, above.
The on-line facilities that budget modification module
30   104 provides include entry or adjustment of budget values
by a percent or monetary value, as well as modification
of data at the detail or summary level.   Summary level
modification is made at a selected summary point and
applied to all subordinates.   Ledger modification module
35   104 permits data to be modified using spreadsheets.   Data

may be extracted from the budget, modified through a
spreadsheet, and then uploaded to BPS ledger 192. Forced
balancing of balance sheet amounts is performed by the
system of the present embodiment based on user-defined

5   balancing identifiers. Out-of-balance conditions may be
corrected automatically and reported. Budget
modification module 104 also performs linked amounts and
net interest margin calculations automatically using on-
line and batch facilities. On-line calculation can be

10   disabled, although calculations continue to be performed
in off-line processing.

     Revenue and expense transfer function 102 allocates
selected amounts to organizations, products, and
customers. Allocation is based on transfer instructions

15   developed and maintained by the financial institution.
Transfer instructions define the organizations, products,
and customers to be involved in the transfer, as well as
the procedure for calculating transfer amounts. The
system of the present embodiment supports two categories

20   of transfer procedure type. First of all, the system
supports unit-factor based transfers when the monetary or
statistical amount may be directly related to an
identifiable activity volume. With unit-factor based
transfers, unit factors are determined externally and are

25   entered into revenue and expense transfer function 102
using on-line or batch facilities. For the present
embodiment, up to five tiered unit factors may be
specified, based on volume levels. Activity volumes are
identified by organization, product, and customer. The

30   unit factor is then multiplied by the transaction volume
to calculate the transfer amount for each organization,
product, and customer.

     The other category of transfer type procedure that
the present method and system support is allocation

35   transfers. An allocation transfer is used when the

monetary or statistical amount cannot be directly related
to an identifiable activity volume. Allocation
procedures are established for each transfer function.
With the present embodiment, four allocation procedures
are provided including (1) allocation of a fixed amount,
evenly distributed, (2) allocation of a fixed amount,
prorated, (3) allocation of a fixed percent, evenly
distributed, and (4) allocation of a fixed percent,
prorated. Any monetary or statistical amount on BPS
ledger 192 may be specified as the basis for prorated
allocations.

Revenue and expense transfer function 102 also
supports posting of transfer amounts on BPS ledger 192.
A debit or credit is assigned to the organization,
product, and customer in posting. An offset credit or
debit is sent to a relief amount for the organization,
product, and customer to which the amount was originally
posted.

Budget distribution module 106 provides on-line
reporting that allows budget information to be viewed in
balance sheet and income statement formats. Balance
sheets, income statements, version-to-version
comparisons, and net interest margin reports may be
generated in batch upon request, using run-time variables
to determine report detail.

The system architecture of the present budget and
planning system provides a cooperative processing system,
utilizing the capacity of a mainframe relational data
store for data collection and storage, and the power of
workstations for budget modification and analysis. The
flexibility of the present budget and planning system is
largely attributable to the structure of BPS ledger
module 100 and the use of hierarchies.

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Budget release module 108 provides a facility to release budget data to the EAS ledger update function of EAS. Budgeted values are selected by the user for external release. In addition, budget release module 108 may permit roll-up along hierarchy lines to consolidate budget data to the desired actual levels. Moreover, budget release module 108 performs interval conversion when necessary to consolidate or expand reporting periods of budget data to align with actual data.

FIGURE 8 illustrates the hierarchy example 110 typical of that may be used with the method and system of the present embodiment. In particular, hierarchy example 110 includes four levels such as level 01, level 02, level 03, and level 04. At level 01, a company identifier "99" is associated with the unit identifier "CORP." At level 02, company identifiers include "Bank A" and "Bank B." For Bank A, a level 03 hierarchy includes "ABC division" and "DEF Division." The level 04 hierarchy identifiers for ABC Division appears as "Center 1" and "Center 2." At the level 04 hierarchy for the "DEF Division" appears "Center 3." Returning to hierarchy level 02 for company identifier "99" and unit identifier "CORP," Company 2 is shown as Bank B having, at hierarchy level 03, "ABC Division" and "DEF Division." At the level 04 hierarchy for Company 2 appears, "Center 1." For DEF Division, the level 04 hierarchy shows "Center 2" and "Center 3."

Hierarchies play a fundamental role in the budgeting process. They are used to determine the valid identifiers for the budget and the level of detail used to budget each dimension (i.e., organization, product, and customer). Hierarchies also support summarizing data from EAS or the present budget and planning system for posting to BPS ledger 192, as well as from the present budget and planning system for posting to the EAS Ledger.

They provide the ability to apply controls, assumptions, or calculations to a subset of data, and to select a subset of data for population, modification, spreadsheet extract, or for copy. They also create the structure
5 necessary for target balance computations and to dynamically build balance sheets, income statements, and Net Interest Margin reports.

Hierarchies for a budget are specified for organization, product, customer, and amount. The
10 hierarchies determine the level of detail for the organization, product, and customer dimensions. For example, an institution desiring to budget at the cost center level would define a hierarchy that included cost center detail, similar to the following hierarchy.

15 Amounts may be budgeted at the detail level (the lowest level of the hierarchy that has no subordinates, such as Company 1 — Center 1) or at summary points (identifiers that have subordinates, such as Company 1 — Bank A). Conversely, a dimension can be excluded from a
20 budget by specifying a hierarchy with a single identifier. For example, the customer dimension could be excluded if budgeting by customer is not desired. A customer hierarchy is specified on the budget profile that contains a single identifier representing the top of
25 the hierarchy, similar to the following hierarchy. The Amount hierarchy determines which amounts are to be included in the budget.

Hierarchies not only determine the level of detail used for budgeting, but also determine which identifiers
30 are valid for posting to the BPS ledger 192. Only identifiers included on the budget hierarchies can be used. In the event data is received by the present budget and planning system that contains valid identifiers not found on the present budget and planning
35 system hierarchies, hierarchical roll-up occurs. A

comparison is made between the source hierarchy and the destination hierarchy to find an appropriate substitute for the identifier.

Hierarchical roll-up may also occur when
5 transferring budget or forecast data to EAS. In the event budgeted amounts are posted to identifiers in the present budget and planning system that are not valid on the primary hierarchy, upon release to EAS, those amounts are rolled up hierarchically and posted to an identifier
10 that is valid on the primary hierarchy. Upon finding an identifier that is not defined on the destination hierarchy, the present system locates the identifier on the source hierarchy and validates whether or not its superior reporting identifier has been defined on the
15 destination hierarchy.

If the superior reporting identifier is valid in the destination hierarchy, it is substituted for the original identifier. On the other hand, if the superior reporting identifier is not located in the destination hierarchy,
20 its superior reporting identifier is examined, and so on. This process is repeated until an identifier that is defined on both hierarchies is found, except when applied to the amount hierarchy.

FIGURE 9 illustrates an example of the hierarchy
25 point assignment feature of the present embodiment. In FIGURE 9, hierarchies include organization hierarchy 120, product hierarchy 122, customer hierarchy 124, which in this case is simply all customers, and amount hierarchy 126. Each hierarchy in the hierarchy point example of
30 FIGURE 9 may include between one and four levels. For example, organization hierarchy 120 includes three levels. The first level is the company identifier "99" with the unit identifier "CORP." At level 02, Company 99 includes line of business or "LOB A" and "LOB B." At
35 hierarchy level 03 under LOB A, organization hierarchy

120 includes for Company 1, "Center 1" and "Center 2."
For Company 2, LOB A includes "Center 1." Also at
hierarchy level 03, under LOB B, Company 2 includes
"Center 2" and "Center 3." For product hierarchy 122, at

5   level 01 are all products with the level 02 hierarchy
including "Asset Products" and "liability products."
Even more specifically, at level 03 product hierarchy
includes loans which at level 04 are even more refined to
include retail loans and commercial loans. Customer

10   hierarchy 124, as mentioned, is simply "All Customers."
Customer hierarchy, however, may be more refined
according to the specific desired results from the
present system. Amount hierarchy 126 at level 01
includes "Total assets." At level 02, amount hierarchy

15   126 includes "Loans." At the even more refined level 03,
loans include commercial loans net and retail loans net.
Level 04 of amount hierarchy 126 includes commercial loan
balance, commercial loan loss residuals, and parts sold.
       Hierarchy point assignment, as indicated by FIGURE

20   9, is an extremely powerful tool that the present
embodiment provides to apply rules and controls to
multiple identifiers or subsets of budget data. The
hierarchy point assignment feature of the present
embodiment capitalizes upon the relationships defined in

25   the hierarchies by allowing summary identifiers to be
used when defining assumptions, rules and controls.
Summary identifiers are identifiers which have one or
more subordinates on the hierarchy. Any time a rule or
control is used using a summary organization identifier,

30   product identifier, customer identifier, and/or amount
identifier, the rule or control is applied to that
identifier and all subordinate identifiers on the
hierarchy found on BPS ledger 192. This reduces the
number of rules, controls or assumptions that must be

35   defined for the budget.

25

The present embodiment provides hierarchy point
assignments for non-global functions and controls such as
non-base rates, base point add-ons, ownership, accrual
methods, annualization methods, linked amounts, net
5   interest margin equations, growth assumptions, and
hierarchical budget maintenance. In addition, summary
identifiers may be used in hierarchy point assignments to
isolate a subset of data when using features including
selection control for population, for spreadsheet
10   extracts, and for inter-budget copying. In addition,
revenue and expense transfer instructions may use summary
identifiers in hierarchy point assignments to isolate
data subsets.

When using hierarchy point assignments, several
15   rules apply. For example, a combination of company or
unit, product, customer (and amount, as appropriate)
identifiers are specified. Detail identifiers or summary
points may be used. Detail identifiers are identifiers
which have no subordinates on the hierarchy. If detail
20   identifiers are used for all four dimensions, the rule or
control is applied to a single entry on BPS ledger 192.
If one or more summary points are specified, the rule is
applied to the specified identifier and all subordinates.
Note that with the present embodiment, an asterisk may be
25   used in place of that specific identifier to indicate
that the rule or control applies to any and all
identifiers for that dimension. Also, multiple asterisks
may be used. At least one dimension, however, must
contain a specific identifier as either a detail or
30   summary identifier.

Returning again to FIGURE 9, the hierarchies and
point assignments are specified for the organization as
"Company 9" and "LOB A," for product as "commercial
loans," for customer as "All Customers," and for amount
35   as "Commercial Loans Net." If the growth assumption was

defined to increase commercial loans for LOB A for all
customers by five percent, the growth assumption is
applied to any amounts found on BPS ledger 192 which meet
the criteria specified above using the hierarchies

5   defined for the budget. If an all-inclusive asterisk was
entered for the organization identifier, amounts for
commercial loans net, commercial loan balance, commercial
loan loss residual, and parts sold would be increased by
five percent for all organizations. Thus, one rule or

10   control can be applied to thousands of budget entries.
The hierarchy point assignment example of FIGURE 9,
therefore, illustrates the power of assigning controls
using hierarchical summary points. Moreover, in the
event of conflicts due to multiple controls being defined

15   which include the same identifiers, an overriding
sequence is provided. The overriding order is,
therefore, (1) customer, where any control specified at
the customer level overrides controls specified by
product, organization or amount; (2) product, where

20   control specified at the product level overrides controls
for organization and amount; (3) organization, where any
control specified for the amount is overridden; and
(4) amount.
FIGURE 10 shows a flow diagram 98 depicting the

25   relationships and operation of budget configuration
module of the present embodiment. Budget configuration
module 98 performs essential steps of budget
configuration phase 32 of the present embodiment. For
the present discussion, the budget configuration module

30   and flow diagram shall be referred to using reference
numeral 88. In flow diagram 98, budget profile module
128 receives on-line entry and hierarchies from MSS
hierarchies 130. Budget profile on-line GUI 128 creates
budget profile 132. Budget profile 132, by on-line

35   entry, goes to basis point add-ons module 134. Base

rates module 136 associates via on-line or batch entry
with budget profile 132, as well as with basis point add-
ons module 136. Base rates 138 come from base rates
module 136. Other outputs from base rates module 136

5 include batch edit rate exceptions report 140 and rates
142. Basis point add-on report 144 comes from basis
point add-ons module 134. Non-base rates module 146
receives on-line or batch entry of budget profile 132 to
produce non-base rates report 148. Rates 142 associate

10 with net interest margin module 150 which also receives
on-line entry. Net interest module 150 provides net
interest margin parameters report 152 and net interest
margin parameters 154.

Also in FIGURE 10, linked amounts module 156

15 receives MSS hierarchies 130 to produce linked amount
formulas report 158. MSS hierarchies also go to growth
assumption module 160 to produce growth assumptions
report 162. Target balance groups module 164 and budget
control parameters 166 also receive MSS hierarchies and

20 on-line entry. Ownership module 168, accrual method
module 170 and annualization module 172 receive MSS
hierarchies 130 and on-line entry to yield ownership and
methods report 174.

Budget profile module 128 creates and maintains

25 characteristics for a budget. Creating a profile is the
first step in of budget configuration module 98. A
budget profile must be defined before data can be entered
or assumptions and controls can be associated with the
budget.

The budget profile contains the budget name and description, including years and intervals, hierarchy structures, the owner, the update availability, the calculation options, and the audit control option. Each budget is assigned a user-defined name and description. The budget name, or budget identifier, is used to associate all information to the budget.

Budget durations from one to five years are supported. The number of years and starting year are specified. If more than one year is specified, years are considered to be contiguous. In addition, the interval for each processing year is identified. Different years may have different intervals. Intervals available for selection are monthly, quarterly, semi-annual, and annual. Edits within the system ensure each year is defined as a valid processing year through the MSS Reporting Period definition and that the frequency of the budget intervals does not exceed the frequency of reporting periods defined for the processing year in MSS.

As part of the budget profile, a hierarchy structure is identified for Organization, Product, Customer, and Amount. Hierarchies play a fundamental role in the budgeting process. They are used to determine the valid identifiers for the budget and the level of detail used to budget each dimension (Organization, Product, and Customer), provide the ability to apply controls, assumptions, or calculations to a subset of data and the ability to select a subset of data for population, modification, spreadsheet extract, or for copy, and to summarize data from EAS or the present budget and planning system for posting to BPS ledger 192. They also are used to create the structure necessary for Target Balance computations and to dynamically build balance sheets and income statements.

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The budget profile also contains several control features to aid in managing the data related to a specific budget. Specifications of an ownership code limits access to a budget. This code is used by security to verify access authority. If an owner code is not assigned, all authorized users have access to the budget.

Budget configuration module 98 documents the basic decisions that are made early in the development of a budget or strategic plan. The decisions that budget configuration module 98 supports include basic assumptions and rules to reflect the bank's policies and strategic plans, the duration of the budget and the dimensions and level of detail to be used. Decisions relating to projection assumptions and access to restricted reporting periods is also supported by budget configuration module 98. Equations to compute amounts calculated from other amounts and interest and funding amounts are also supported by budget configuration module 98. The decisions that are captured during the budget configuration phase support the system processing performed in the remaining portions of budget cycle 30 including population phase 34, modification phase 36, and distribution phase 38.

During the operation of budget configuration module 98, the user defines budget assumptions and rules used for controlling, calculating, and reporting budget values. The definition of the level of detail to which amounts are budgeted includes the selection of the organization, product, customer and amount hierarchy structure. The hierarchies are used to dynamically build reports and to allow multidimensional views for on-line and batch reports. Definition of ownership of budget data also occurs in budget configuration module 98. Identification of budget amounts which are dependent upon other amounts or volumes and definition of the formulas

to be used occurs within budget configuration module 98.
Growth assumptions reflecting management's expected
growth or decline based on known factors or strategic
goals also occurs during the processing of budget

5   configuration module 98. These are applied to the base
budget amounts during the working budget population.
process. For example, a growth assumption may include
the desire to expand a mortgage loan portfolio by 15%,
close a particular unprofitable branch in six months, or

10   reduce data processing costs by $500,000 per year due to
an outsourcing contract.

Budget configuration module 98 also provides for
specification of components that compute funding costs,
interest income and expense, and net interest margins.

15   For funding calculations, controls are defined including
the specification of amount identifiers that will cause
interest income and expense and funding calculations to
be done. The development and maintenance of interest
rate forecast by budget and the definition and

20   maintenance of basis point add-on amounts associated with
base rates are specified in budget configuration module
98. Moreover, determination of the accrual method used
to determine the number of days in the period and the
year for calculation occurs during the processing of

25   budget configuration module 98. With this information,
desired levels of business are defined by specifying
target balances for particular portfolio balances such as
commercial real estate loans. These definitions support
the calculation of incremental balances for asset,

30   liability or equity balances.

A budget may also need to be controlled at different
levels throughout the development process. For example,
it may be desirable to restrict access to a controlled
central group while assumptions are being made during the

35   Budget Configuration phase. During the Budget

Modification phase, when many users are entering data,
the budget should be available for general use. After
the budget is finalized, it may be necessary to lock the
budget from any modification. A budget availability
indicator is provided to allow access to the budget to
all users, select users, or no users.

The present budget and planning system provides on-
line, real time calculations for linked amounts and the
interest and funding amounts for Net Interest Margins.
It may not be desirable to perform these calculations on-
line during all phases of budget preparation. An
indicator is provided to select whether or not these
calculations are performed on-line. Calculations occur
in batch, regardless of the setting.

The rate and basis point add on process of the
present embodiment includes the definition of rates and
basis point add ons to support Net Interest Margin or NIM
calculations. Some NIM calculations require the use of a
base rate, others require the use of a base rate plus a
basis point add on and others require the use of a non-
base rate. Base rates, such as Prime and LIBOR, are
specified at the institution level. Non-base rates, such
as actual yields/rates, are specified at the detailed
level of Organization, Product, Customer, and Amount.

Budget rates data store 142 maintains and controls
base rates and non-base rates. Basis point add on data
store maintains and controls basis point add ons. When
non-base rates and basis point add ons fall into groups
or categories, they can be defined for specific
identifiers through hierarchy point assignment. This
facility accommodates definition by entry of an asterisk
to indicate all occurrences of a dimension, a roll-up
point to include all identifiers related to that roll-up
point, or specific identification at the lowest level.

Base rates 136 may be adjusted up or down by the
addition of basis point add ons. A NIM calculation
specifies the use of a base rate. This calculation uses
the base rate without adjustment unless a basis point add
5   on has been identified either specifically or through
inherited definition for the Organization, Product,
Customer, and Amount.

When a non-base rate is selected for use in a NIM
calculation, a search is made for a non-base rate to be
10   applied to the Company, Unit, Product, Customer, and
Amount involved in the search. If a non-base rate
matching these criteria cannot be located, either from
specific or inherited definition, the result of the
calculation is zero. When this condition is detected in
15   batch, an error is reported on the Automatic Calculation
Exceptions report (at reference numeral 200 in FIGURE
11).

Base rates and non-base rates are created and
maintained using on-line or batch facilities. Base rates
20   are identified by rate identifier and Budget identifier.
Non-base rates are identified by rate identifier, Budget
identifier, and identifiers for Organization, Product,
Customer, and Amount.

Rates are added to both the budget rates and the
25   Basis Point Add On data stores by reporting period using
on-line facilities. If the rate to be entered is the
same for all reporting periods, a facility is provided to
enter the rate once and have it apply to all reporting
periods. For individual application of rates to
30   reporting periods, a list is produced of all valid
reporting periods to which rates can be applied. The
reporting periods are displayed from the MSS Reporting
Period definitions for all processing years in the
budget.

Rates may be changed even though the rate identifier
to which they belong is used in a NIM formula. A
recalculation feature is available that automatically
recalculates all formulas using a new rate when the rate

5   is changed. Once a rate identifier has been referenced
by a NIM formula, it may not be deleted from the budget
rates data store without first changing the formula to
reference a different rate identifier. In addition, once
a rate identifier has been referenced by a Basis Point

10   Add On entry, it may not be deleted from the budget rates
Data Store without first changing the Basis Point Add On
reference.

Base rates are used at the institution level. Non-
base rates are specific for an Organization, Product,

15   Customer, and Amount combination. Basis Point Add ons
are related to a base rate and are defined for specific
identifiers through hierarchy point assignment.

Net Interest Margin feature 150 is used in a NIM
calculation to create budget amounts for interest accrual

20   and funding amounts. These calculations are performed in
batch any time the balance, rate, or basis point add on
used to produce the calculation changes, except in those
instances where periods of a budget have been protected.
In these cases, calculations are disabled on-line and in

25   batch. On-line calculation is controlled by the
CALCULATION option on the "Budget Profile" window. In
addition, an automatic offset entry for the charge/credit
for funding is created in batch based upon Net Interest
Margin definitions. NIM parameters report 152 indicates

30   the BUDGET ID, Amount ID COMPANY, UNIT, PRODUCT,
CUSTOMER, all charge/credit for funds, and interest
income and expense parameters and is available upon
request.

The present embodiment also performs linked amount calculations to define the creation of a budget amount that is based on another budget amount and cannot be changed by batch or manual modification. On-line

5   calculation is controlled by the CALCULATION option on the "Budget Profile" window. The linked amount is recalculated in batch whenever the base budget amount changes, or when the formula used to calculate the linked amount changes, except in those instances where periods

10   of a budget have been protected. In these cases, linked amounts are disabled on-line and in batch.

FIGURE 11 shows processing flow for budget ledger update module 100 of the present embodiment. As FIGURE 11 depicts, EAS input 88 and budget and planning system

15   input 84 go to budget population process module 96. Budget population process module 96 also receives input from data staging facility 86 and application extracts 182. Output from budget population process module 96 goes to BPS ledger update module 184. BPS ledger update

20   module 184 receives input from revenue and expense transfers 102 and budget control parameter 166. In addition, spreadsheet upload module 186 provides input to BPS ledger update module 184. Output from BPS ledger update module 184 includes audit journal by source 188

25   and BPS posting exceptions report 190. Also, BPS ledger update module 184 updates BPS ledger 192. BPS ledger 192 also receives outputs from hierarchical ledger maintenance module 194 and ledger detail module 196. Hierarchical ledger maintenance module 194 may receive

30   on-line or batch entry. BPS ledger 192 communicates with recalculation module 198 and produces automatic calculations exceptions report 200.

BPS ledger module 100 is a primary source of the present system's power and flexibility. BPS ledger

35   module 100 contains the detail level budget information.

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Within BPS ledger module 100, budget data is stored in a
series of entries in a table. For illustrative purposes,
BPS ledger 192 may be viewed as a table made up of
columns and rows. The rows are known as entries, where
5   each entry consists of columns containing amounts or
identifiers describing these amounts. Each ledger entry
has the following identifiers: (1) a budget identifier
to which the entry applies, (2) the year to which the
entry applies, (3) a company identifier to which the
10   amount is assigned, (4) the unit identifier of the
organization unit within the company to which the amount
is assigned, (5) the product identifier of the product to
which the amount is assigned, (6) the customer identifier
of the customer to which the amount is assigned, and
15   (7) the amount identifier that describes the amount.
Each entry in BPS ledger 192 may contain from one to
twelve amounts, depending upon the interval defined for
the budget year. Moreover, the number of columns used
depends on the number of reporting periods defined for a
20   year. For example, a budget using monthly intervals has
twelve amount columns for each row entry. On the other
hand, a budget using quarterly intervals has four
entries, whereas a budget using semi-annual intervals has
only two. Each entry is identified as either monetary or
25   statistical. A value is provided for each identifier
with adding or updating entries on BPS ledger 192.

FIGURE 12 shows budget population flow diagram 96
wherein EAS/BPS population extracts selection module 210
may receive inputs via on-line entry.   EAS/BPS
30   population extracts selection module 210 produces extract
requests 212 that go to extract process 92. Extract
process 92 also associates with EAS 88 and BPS 84. No
output from extract process 92 goes to interval
conversion module 214. Interval conversion module 214
35   may receive application extracts 182 and input from data

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staging facility 86, as well as translated interface data
216. Application extracts 182 and data staging facility
86 also associate with identifier translation module 218,
which provides an input to currency translation module
5   220 to generate translated interface data 216. Together
indentifier translation module 218 and currency
translation module 200 form translation control module
94. Interval conversion module 214 and growth assumptions
160 associate with budget projection and population
10   module 222. The output from budget projection and
population module 222 goes to BPS posting module 198.
Output from BPS posting module 198 includes BPS Audit
Journal by Source report 188 and BPS Posting Exceptions
report 190. BPS posting module 198 also provides input
15   to BPS ledger 192. Output from BPS ledger 192 associates
with budget modification module 104.

Budget population phase 96 may be performed from a
single source or multiple sources, and it may be run
multiple times. Budget population process 96 includes
20   the functions of (1) population control parameters
definitions, (2) population extract, (3) roll up,
(4) identifier translation, (5) currency translation,
(6) integral conversion, and (7) budget population and
projection. After a draft or working budget is populated
25   and projected, the present system hosts the working
budget to BPS ledger 192 to permit modification.

EAS/BPS population extract selection module 210
performs the functions of population configured
definitions and population extract requests as well as
30   roll up according to hierarchical structures. Population
phase of budgeting requires definition of the population
methods to be used, growth assumptions to be applied to
the budget data, and target balance group definitions
that are to be created. Population extract requests
35   define what EAS/BPS data will be transferred to the

budget. The controls include the selection of EAS/BPS periods, categories and identifiers to be transferred and the definition of a decimation budget and period. With EAS/BPS population extract selection module 210, data is accumulated from a detailed to a summary level, if required, by comparing source and destination hierarchy ·structures.

Identifier translation module 218 processes application extract data which is not identified with budget key identifiers or organization, product, customer, or amount. Currency translation module 220 processes application extracts which contain currency amounts not stated in the base currency of the budget. Interval conversion module 214 converts data from EAS/BPS, data staging facility, and application extracts from the source interval to the BPS destination interval. Furthermore, budget projection and population module 222 projects values for budget data based on chosen population methods, growth assumptions, and target balances groups. Selected data uses may be tailored to fit specific requirements. A single source period and a range of destination periods may be used in conjunction with the population method, growth assumption, and target balance group definition to repair unique population data.

Population methods of budget population phase 96 are used when initial data is transferred into the budget system. These methods facilitate projection of amounts for the remainder of the current year in preparation of initial population values for one or more future years. Population process 96 transfers data from the specified source periods to the specified destination periods. All source destination periods are related to a selected budget. Three populations that the present embodiment provides include a direct move for (1) moving from a

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single EAS period to a range of budget and planning
system periods, (2) from a range of EAS periods to a
range of budget and planning system periods, (3) from a
single budget and planning system period to a range of
5   budget and planning system periods, and (4) from a range
of budget and planning system periods to a range of
budget and planning system periods. Another population
method, the consecutive intervals method permits
(1) moving the amount from the source period specified to
10   the first destination specified, (2) moving the amount
populated in the first period to the second period and
adjusting the second period with any growth assumption
specified for that destination period, and (3) continuing
in a current mode until all destination periods have been
15   populated. Yet another method called the period-over-
period population method includes facilities that are
identical to the facilities under the direct move method.
If the period-over-period population method is selected,
growth assumptions will search for adjustments identified
20   for the company, unit, product, customer, and amount
identifiers involved in the population. If a growth
assumption is encountered, each period is adjusted by the
defined growth assumption percent or amount. On the
other hand, if no growth assumption is encountered, the
25   period-over-period method functions like the direct move
method.

        With the present embodiment, the population method
to be used is determined in one of the following ways. A
population method may be specified for each extract using
30   a population extract user interface. On the other hand,
external application data provided to the present
system's population process may include the specification
of a population method. On the other hand, a system
default population method of period-over-period is
35   provided.

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The use of growth assumptions provides numerous
capabilities for the present system. For example, growth
assumptions assist in establishing the initial values of
a working budget. They allow management business
5   assumptions to be applied to existing information.
Growth assumptions are applied only during budget
population phase 96. Therefore, associated calculations
are not done on a recurring basis each time budget data
is modified. Growth assumptions are used to increase or
10   decrease a populated amount. The present system operates
so that one growth assumption may be specified and
applied to many BPS ledger 192 entries during system
operation. The present embodiment provides reports that
are available on request to provide a detailed listing of
15   budget identifier of all defined growth assumptions.
In addition, growth assumptions definitions provide
the ability to adjust growth assumptions by a fixed
amount. It is possible with the present embodiment to
increase or decrease the populated value with adjustments
20   applied to one, all or selected periods. A definition
for one ledger entry or for multiple ledger entries are
permissible for growth assumptions using the hierarchy
point assignment feature of the present embodiment.
Moreover, growth assumptions definitions may be created
25   and maintained on-line.
Interval conversion module 214 may operate as data
is used to populate the present system and also when the
final budget data is extracted. If the data being
brought into the present system is for a different length
30   of time than the interval for which the budget is
defined, interval conversion module 214 operates to
convert the data to the proper interval. For example, if
the data coming in is quarterly data while the desired
budget is monthly, interval conversion module 214 divides

the incoming data into three monthly amounts to form
monthly data.

Extract process 92 selects and extracts data from
the specified source system in preparation for population
5   and projection of the data into BPS ledger 192.
Population extract requests 212 have the following
definition capabilities with the present embodiment. It
is possible to define the information to be extracted and
populated as well as multiple extract requests. Extract
10   requests may be created, deleted, and maintained on-line
with a list of existing population extract requests 210
ready for review.

Budget projection and population module 222 applies
the assumptions made about growth projections and target
15   balances to the data that was extracted from the source
systems and prepares it for posting to BPS ledger 192.
The budget projection process of budget projection and
population module 222 involves the functions of applying
population methods, applying growth assumptions, and
20   calculating and processing target balances. The
parameters which define the budget population and
projection may be determined during budget configuration
phase 32.

With the present embodiment, the processing of
25   populations and application of growth assumptions is
interrelated. The population method and growth
assumptions are applied to the extracted source data to
determine the initial working budget values for the
different periods of data. These calculated values may
30   be involved in additional target balance group
calculations or directly posted to BPS ledger 192.

Basic rules for processing include, first of all, if
no population method has been defined and if growth
assumptions exist, the period-over-period population
35   method is applied. If no growth assumptions exist, the

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direct move population method is applied. If there is a
conflict between the population method and the growth
assumption defined, the population method overrides.
Moreover, if the consecutive intervals population method
5   has been selected, only a single period of source data is
used. However, interval conversion process 214 must be
considered before data is selected. For example, if the
source interval is monthly and the destination interval
is quarterly, the conversion of quarter data takes place
10   before a single period of data is selected. Even if the
source specifies a range, the present system uses only
the periods required to create a single destination
interval.
FIGURE 13 shows budget modification phase 104 flow
15   diagram. In the flow diagram for budget modification
phase 104, on-line entry provides input into revenue and
expense transfer (RET) processing and control module 226,
manual data modification module 228, and spreadsheet
extract request module 230. MSS hierarchies 130 permits
20   edits to RET processing and control module 226 and manual
data modification module 228. RET processing and control
module 226 generates RET instructions 234 that go to RET
processing module 236. RET processing module 236
provides inputs to BPS ledger 192. Spreadsheet extract
25   request module 230 provides input to spreadsheet download
module 238 which receives BPS ledger 192 input for
producing spreadsheet data 240. Changes may be made
through Lotus 1-2-3®, Microsoft Excel® or a similar
spreadsheet program. Spreadsheet data 240 goes to
30   spreadsheet upload request module 242 for providing input
back to BPS ledger 192. BPS ledger 192 also receives
input from balancing process module 244, funding process
module 246 and communicates with automatic calculation
process module 248.

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On-line entry provides input to balance sheet
balance control module 250 for generating balancing
control data 252. Balancing process module 244 receives
balancing control data 252 and, as well as providing
input to BPS ledger 192, generates Balance Sheet
Balancing Control report 254. On-line entry also goes to
funding control module 256. From funding control module
256, funding control data 258 is produced for receipt by
funding process module 246. Funding process module 246
produces Budget Funding Control report 260 as well as
input to BPS ledger 192. Automatic calculation process
module 248 receives budget profile data 132 as well as
budget control data 166 to produce an input to BPS ledger
192 and automatic calculations exceptions report 264.

For the present embodiment, detailed modification of
data, therefore, occurs after the budget has been
initially populated and reviewed in budget modification
module 104. The responsibility during budget
modification process 104 often changes from an
essentially controlled environment to a distributed
environment. Changes may be made by cost center managers
or others who are familiar with a lower level of
budgeting detail.

The processes of budget modification process 104 are
repetitive. Changes are made, reports are produced, the
budget is reviewed and changes are made again. Budget
modification process 104 is repeated until the budget is
finalized and approved. To aid in this process, several
facilities are provided for data modification. The
present embodiment includes two manual modification
facilities 228 that enable users to make changes to
existing values or add additional amounts to the budget.
For example, detailed modification allows the values to
be changed from one ledger row for a specific
organization, product, customer and amount. In addition,

high-level modification allows changes at a roll up point
to be automatically applied to subordinates.

Another facility of the present system is the batch
reporting facility that may associate with the present
5   embodiment for downloading data from BPS ledger 192 as
spreadsheet download module 238 indicates. Once changes
have been made to a spreadsheet, spreadsheet upload
request module 242 uploads the updated amounts to BPS
ledger 192 to replace values. Moreover, with the present
10   embodiment, the allocation of overhead items and unit
costs may be executed through the RET facility as
indicated by RET processing and control module 226.

Automatic calculation process module 248 is executed
using on-line or batch facilities. This process causes
15   all amounts tied to formulas, such as linked amounts or
amounts dependent on other calculations, to be recomputed
so that up-to-date information may be viewed on reports
or through on-line inquiry facilities during data
modification process 104.

20   During the final phase of budget modification
process 104, the functions of balancing process module
244 and funding process module 246 are provided to
prepare the budget for budget distribution phase 38 (see
FIGURE 3). Both functions may be executed at any time,
25   but would normally be used only during the final phase of
budget development. Balancing process module 244
provides a force balancing feature that insures that
debits equal credits for all balance sheet amounts for
each category within the budget. If necessary, a
30   balancing entry is created based on user-specified
balancing control definitions. Funding process module
246 generates funding center offsets for charge/credit
amounts computed through the auto-calculation feature for
net interest margin (NIM) formulas. Funding
35   charge/credit offsets are generated during an off-line

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process based on user-defined funding control
definitions.

Automatic calculation process 248 provides the
ability to keep current those budget values that are
5   based solely upon other budget values. Automatic
calculations defined for the budget process of the
present invention are of two types, including linked
amounts and net interest margin calculations. For the
present embodiment, if multiple links or NIMs have been
10   specified for a particular organization, product, or
customer, there is an override order rule that applies.
For the customer identifier, any controls specified at
the customer level override controls specified for
product, organization, or amount. At the product level,
15   any specified controls override controls for organization
or amount. For the organization level, any specified
control for amount is overridden.

FIGURE 14 shows flow diagram 270 to depict the
budget modification through spreadsheets feature of the
20   present embodiment. In flow diagram 270, batch extract
request module 272 provides an input to batch spreadsheet
extract processing module 274. Batch spreadsheet extract
processing module 274 receives input from BPS ledger 192.
Batch spreadsheet extract processing module 274 provides
25   an optional output of MSS report results 276 and
spreadsheet extract data set 278. By on-line entry, the
MSS report results may go to spreadsheet
selection/download module 238. Spreadsheet extract data
set 278 associates with host download non-EMS process
30   module 280. The result is spreadsheet-delimited personal
computer file 282. Spreadsheet-delimited personal
computer file 282 goes to BPS budget spreadsheet template
module 284 for generating standard-delimited personal
computer upload file format 286, which goes to
35   spreadsheet upload request module 242 and, optionally, to

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manual file upload process module 288. Spreadsheet
upload request module 242 also is performed on-line to
produce spreadsheet upload control information 290, a
part of which also comes from batch host data set
5   spreadsheet processing module 292. Batch host data set
spreadsheet processing module 292 receives input from
manual file upload process module 288. Spreadsheet
upload control information goes to spreadsheet
preprocessing module 294. Spreadsheet pre-posting
10   process module 294 generates Spreadsheet Upload
Statistics report 296 and an input to BPS population
posting module 198. BPS population posting process 298
provides output to BPS ledger 192 as well as to Audit
Journal by Source report 198 and BPS Posting Exceptions
15   report 190.

Process flow diagram 270 indicates that the detailed
modification of data occurs after the budget has been
initially populated and reviewed. Changes may be made by
cost to center managers or others who are familiar with a
20   lower level of budgeting detail.

Because of the spreadsheet capabilities that the
present system provides, bank personnel doing budget work
in a distributed environment may make the detailed
changes on a spreadsheet tool such as Lotus 1-2-3® or
25   Microsoft Excel® on which they are already trained.
There is no need for them to be familiar with the Windows
capabilities that the present embodiment provides, or for
them to have the budget and planning system of the
present embodiment on their individual personal
30   computers. New budget information may be added to
spreadsheets and posted to BPS ledger 192 using this form
of processing. As flow diagram 192 indicates, therefore,
spreadsheet capabilities that the present embodiment
provides include (1) extraction of data from BPS ledger
35   192, (2) downloading extracted data to a spreadsheet

program such as Lotus 1-2-3® or Microsoft Excel®,
(3) modification of the spreadsheet data using standard
spreadsheet tools, (4) uploading modified data into a
spreadsheet, and (5) posting the spreadsheet data to BPS
5   ledger 192.

When measuring the profitability of an organization,
product, or customer, it is important that the present
system accurately reflect revenues, expenses, and balance
sheet data associated with the respective entity. The
10   data that the present system receives often comes from
general ledger applications that may present data in a
summarized form not identified with organizations,
products, or customers, it is necessary to realign some
of the data to derive the organization, product, and
15   customer views desired for profitability reporting. To
this end, the present embodiment includes a revenue and
expense transfer or RET function that reassigns selected
revenue, expense, balance sheet, and statistical amounts
to specified organizations, products, and customers based
20   on transfer instructions established by the user.

FIGURE 15 shows RET program flow designated with
reference numeral 102. As flow diagram 102 indicates,
MSS hierarchies 130 provide hierarchies to RET inter-
company parameters set-up maintenance module 300,
25   reporting periods to transfer processing parameters set-
up/maintenance module 302 and company identifiers and
hierarchies to set/instructions set-up/maintenance module
304 and RET set/instruction processing module 306. On-
line entry permits input to RET inter-company parameter
30   set-up/maintenance module 300, transfer processing
parameters set-up/maintenance module 302, and
set/instruction set-up/maintenance module 304.

Set/instruction set-up/maintenance module 304 may
also receive batch entry. RET inter-company parameters
35   set-up/maintenance module 302 provides inter-company

entry identifiers to inter-company transfer parameters
308 which go to RET set/instruction processing module
306. Transfer processing parameters set-up/maintenance
module 302 also receives set identifiers from transfer
5   set/instruction data base 310 and provides transfer
control identifiers and set sequences to transfer
processing parameters 312. Set/instruction set-
up/maintenance module 304 produces RET maintenance
journal 314, RET set/instruction exceptions report 316
10   and RET set/instruction listing 318, as well as provides
set identifiers and instructions to transfer
set/instruction data base 310.

RET set/instruction processing module 306 receives
inter-company transfer parameters 308, company
15   identifiers and hierarchies from MSS definition and
relations 302, control identifiers to be processed in set
sequences from transfer of processing parameters 312,
selected monetary and statistical amounts from EAS ledger
88, transfer set/instruction data base 310, and selected
20   monetary and statistical amounts from BPS ledger 192.
RET set/instruction processing module 306 produces RET
exception reports 320 and provides inputs to EAS
generation of posting input module 322 and BPS generation
of posting input module 324. EAS generation of posting
25   input module 322 produces RET posting journal by
organization report 326 and RET posting by journal
instruction report 328. Optionally, EAS generation of
posting input module 322 may produce RET-FTP activity
journal 330, RET-FTP audit journal 332 and FTP allocated
30   balances file 334 for subsequent FTP processing by the
EAS system. Also, EAS generation of posting input module
322 provides posting input records and EAS ledger updates
to EAS RET billing file 336.

BPS generation of posting input module 322 produces
35   RET posting journal by organization 338 and RET posting

journal by instruction 340. BPS generation of posting
input module 324 produces BPS generated input 344 for
updating BPS ledger 192 and optionally provides input to
BPS RET billing 342.

With RET functions, transfer instructions define the
organizations, products, and customers to be involved in
the transfer, as well as the procedures to be employed in
calculating transfer amounts. The present embodiment
includes two types of procedures including (1) unit-
factor based transfer or (2) allocation transfer.

A unit-factor based transfer procedure is used when
the balances to be transferred can be directly related to
a quantifiable activity volume. Under this method, unit
factors such as cost or prices, are predefined and
maintained for the provider of each activity. The data
is stored as statistical or monetary entries on EAS
ledger 88 or BPS ledger 192 and may be manually input
through the EAS ledger update or captured through an
automated interface. These volumes are identified with
the organizations, products, and customers that use the
activity. The transfer procedure takes each volume of
data and multiplies it by the unit factor to calculate
the transfer amount to be assigned to the user
organization, product, and customer.

RET function 102 supports unit-factor based
transfers under any costing methodology including
standard, actual, or average actual cost. The unit
factors are determined externally to EAS or BPS and are
entered and maintained through RET function 102. A
single unit factor may be defined to apply to all volumes
for particular activity, or tiered factors may be
specified for up to five levels of user activity volume
with the present embodiment.

The allocation transfer procedure of RET function
102 is used when the amount to be transferred cannot be

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directly related to a quantifiable activity volume.
Under this method, a fixed amount, a fixed percentage or
a prorated amount or percentage of the specified amount
may be directly transferred to the appropriate
5   organization, product, and customer. Any monetary or
statistical amount on BPS ledger 192 may be specified as
the basis for prorated allocation.

After a transfer amount is calculated using a unit-
factor based or allocation procedure, the organization,
10   product, and customer to which the amount is assigned is
credited or debited on BPS ledger 192, and the offsetting
relief debit/credit is sent to BPS ledger 192 for the
organization, product, and customer to which the amount
had been posted originally.

15   For EAS, RET function 102 supports single-stage, as
well as multiple-stage transfers. Multiple-stage
transfers involve transferring an amount from the initial
provider through an intermediate user, or several
intermediate users, to the final user organization,
20   product, and customer. In EAS, this process is
automatic, as EAS ledger 88 is updated at the end of each
transfer set. In BPS, the multi-stage transfer process
is not supported because BPS ledger 192 is updated at the
end of BPS transfer processing, not at the end of set
25   processing.

Inter-company transfers are also supported using the
concept of inter-company clearing accounts. The RET
billing file 342 feature allows the details of each
successfully processed instruction to be captured and
30   stored for each reporting period. This information may
be used to generate customized reports to meet each
client's specific needs.

Note that for EAS generation and posting input
module 322, the optional FTP allocated balances file 334
35   feature allows specified balances created during a

successfully processed transfer to be sent to funds transfer pricing module of EAS for processing.

For the following discussion, the term ledger may either refer to either EAS ledger 88 or BPS ledger 192, as appropriate. When a specified ledger is referenced, the terminology will be specifically EAS ledger 88 or BPS ledger 192. Returning to FIGURE 15, transfer instructions are predefined and grouped into sets by the user. Set identifiers are established on-line through a transfer set window in the present embodiment. Transfer instructions may be entered on-line through the transfer instruction window. However, as set/instruction set-up/maintenance module 304 indicates, set identifier and instructions may also be entered in batch mode. Additionally, transfer sets and instructions may be flagged to be retained on the RET set/instruction data store. Transfer sets and instructions that are not retained on the data store are only executed once. Transfer sets and instructions that are retained on the data store may be executed as often as required.

When RET set/instruction processing module 306 operates, transfer sets to be executed are processed sequentially. During processing, the ledger is accessed to obtain values required by each transfer instruction within the set. Processing for each transfer instruction includes calculating transfer amounts and determining "relief" and "to" entries for EAS generation of posting input module 322 and BPS generation of posting input module 324. Exception processing is also done at this time. RET set/instruction processing module 306 may also be operated in edit-only or edit-and-post mode.

EAS generation of posting input module 322 and BPS generation of posting input module 324 create "relief" and "to" posting records to be sent, respectively to the EAS ledger update or BPS ledger 192 update functions for

posting to the appropriate ledger. Monetary posting
records can also involve inter-company transfers. If the
company identifier for a "to" entry as different from the
company identifier for the "relief" entry, two additional
5   posting entries are created by the system of the present
embodiment for inter-company transfers. First, a posting
entry for the relief company's inter-company receivables
amount identifier for the transfer amount calculated, and
a posting entry for the "to" company's payables amount
10   identifier for the same amount.

If the RET billing file option is selected for
processing, all transfer transactions generated during
the transfer set/instruction processing 306 operation in
edit-and-post mode are used to create EAS RET billing
15   file 336 or BPS RET billing file 342. Entries to the
appropriate RET billing file are generated only for
instructions that were successfully processed. Each
debit and credit entry contains the details of the RET
instruction, the elements used to determine the transfer
20   amount, posting information, amount category code, and an
indicator used to determine whether the entry should or
should not appear on customized RET billing reports.

Additions to the RET billing file are made each time
the transfer set/instruction processing function 306 is
25   executed with the RET billing file option, thereby
providing a collection of entries for each reporting
period in the event transfer set/instruction processing
is run multiple times within the same reporting period.

For EAS, transfer of set posting records are
30   forwarded to the EAS ledger update function at the
completion of processing for each transfer set.
Thereafter, posting occurs. For BPS, transfer set
posting records are accumulated in the BPS generated
input file 344 at the completion of processing. These
35   records span the from/to reporting periods specified by a

BPS control identifier. At the end of RET processing, like keys are aggregated and are forwarded to BPS ledger 192 update using the BPS generated input 344.

RET inter-company parameter set-up/maintenance module 300 supports inter-company transfers of monetary amounts by pre-establishing the inter-company transfer posting entry identifiers for each company sending or receiving transfers. EAS and BPS share the inter-company parameters in the present embodiment. This is accomplished through the inter-company parameters window that either facility provides.

With the present embodiment, a primary window and its related secondary windows are used in defining transfer sets and instruction. A primary window and its related secondary windows establish transfer steps for processing. The transfer instruction window and its related windows are used to create each individual transfer instruction within a set. A transfer set identifies a group of related instructions required for transfer amounts. A set is established by entering a set identifier on the transfer set window. The primary use of transfer sets is to support multiple-stage transfers in EAS. A secondary use of transfer sets is to group related transfer instructions to facilitate user review and maintenance. An example of this use is statistical instructions established in one set. While the system of the present embodiment, however, multiple-stage transfers are not supported because the posting to BPS ledger 192 does not occur until the completion of RET set/instruction processing module 306 operation.

The budget and planning system of the present embodiment includes a budget distribution module 106 that supports standard report formats for batch execution reports. The present budget and planning system provides batch summary and detail budget planning results to the

financial institution's budget planners. Customized
reporting requirements are handled through the management
support system (MSS) batch reporter, or some other
client-reporting tool. Maintenance of the present system
5   is reported on standard reports. To explain the budget
distribution module 106 of the present embodiment, FIGURE
16 shows the processing flow diagram also designated by
reference numeral 106 for the budget distribution
function. In response to on-line entry and input from
10   report definitions 352, on-line report selection module
350 produces balance sheet inquiry report 354 and income
statement inquiry report 356. Also, on-line report
selection module 350 produces report selections and
download file 358 which goes to batch reporting
15   generation module 360. Batch report generation module
360 receives input from BPS ledger 192, which also
provides input to report selections and download file 358
and budget release and roll-up process 364. Batch report
generation module 360 produces average balance sheet 366,
20   income statement 368, version-to-version comparison
report 370 and net interest margin or NIM report 372.
Budget release and roll-up process 364 receives budget
release criteria 374 which comes from budget release
control module 376 in response to on-line entry. Output
25   from budget release roll-up process 364 goes to interval
conversion process 214 which produces an output for
generate posting entries module 378 for generating Budget
Release Audit Journal 380 and ELU input file 382.
        For the present embodiment, reports can reflect
30   views for different dimensions such as organization
balance sheet, a product balance sheet, or a customer
balance sheet. The multi-dimensional design of BPS
ledger 192 also supports the custom development of user-
defined cross views (such as report of product
35   profitability by organization or customer profitability

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by the report). The reporting facility includes the ability to request reports that a specific organization, product, or customer hierarchy point and to specify levels of reporting required.

5 The present embodiment includes an inquiry facility to produce balance sheet inquiry 354 and income statement inquiry 356 in a desired format for a view of selected organization, product, or customer data. Real-time hard-copy reports are available through a spreadsheet product

10 such as Lotus 1-2-3® or Microsoft Excel®.

Batch report generation facility 360 generate high-volume, detail-level, hard-copy reports. Batch report generation module 360 is designed to satisfy financial institution's need for dissemination of budget

15 information to managers who may not have access to the real-time reporting facility. Hard-copy budget reports may be generated by organization, product, or customer hierarchies using batch report generation facility 360. The system of the present embodiment provides a flexible

20 report formatting tool called the MSS batch reporter which allows definition of an unlimited number of batch report formats. Report formats may be grouped for batch processing selection and groups may be retained for future use. Data dimensions including organization,

25 product, customer, and amount are available for use in report definitions. Report detail lines are dynamically built from the amount hierarchy structures. Net interest margin report 372 may be dynamically built using the product hierarchy. System hierarchies, budget plans, and

30 system data stores such as budget rates, are available for BPS batch reporting. The specific report formats are unique to each institution and must be tailored on site. A sample set of BPS batch reports is provided using the method and system of the present embodiment for use in

35 installation testing. The samples illustrate various

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reporting views and formatting techniques and may be used
as models for custom report development.

Budget release and roll-up process 364 transfers a
completed plan to another system as desired, such as EAS
5   to be used as budget or forecast data for profitability
reporting. The transfer format for a budget release and
·roll-up process 364 supports EAS input requirements.
Data format requirements for transfer into other systems
may be unique to each institution and are tailored during
10   the system implementation.

As budget distribution flow chart 106 indicates,
therefore, the present method and system provides a real-
time inquiry facility into BPS ledger 192 through a
balance sheet inquiry 354 or income statement inquiry 356
15   that may be viewed and printed. The requestor specifies
the budget identifier and year, and the asset, liability,
and equity amount identifiers for inclusion in the
reports. The amount hierarchy identified to the budget
identifier controls the rolls to be presented on the
20   report with detail down to the second level of the amount
hierarchy. The inquiry versions on the balance sheet and
the income statement are produced for only one selected
organization, product, and customer. The one selected
combination of organization, product, or customer may
25   represent a summary point, for example.

Report run-time parameters are available in supply
job control language for batch production of spreadsheet,
balance sheet, income statement, net interest margin, and
version-to-version comparison reports. With budget
30   distribution process 106, control parameters such as
budget identifiers and budget years, specific structure
identifiers for each hierarchy, and variable data for use
in a specified standing report may be established as run-
time parameters. The supply job control language
35   includes the ability to request reports either at a

specific organization, product, or customer hierarchy
point, or at a beginning hierarchy level. The number of
levels to be included may be specified, as well as
specific amount identifiers required to define lines to
5   be included on the report.

With budget distribution process 106, a report
production may be requested at any time by submitting
mainframe batch jobs. Batch report generation module 360
performs all data manipulations and calculations and
10   generates formatted input to a print file. Budget
release and roll-up process 364 transfers the completed
budget plan from BPS ledger 192 to an external system
such as EAS or the general ledger. Budget release and
roll-up process 364 is initiated through a budget release
15   control window, for example, by specifying such variables
as the budget identifier and year for release and the
desire of output data type, e.g., budget or forecast.
This process creates conversion format posting entries
(12 amounts for each year) ready for EAS ledger 88 update
20   processing.

FIGURE 17 shows an example of an organization
balance sheet that the present embodiment provides for
viewing and printing real time report requests. The
present system may use Lotus 1-2-3®, or Microsoft Excel®,
25   or other similar spreadsheet software to produce balance
sheets of the type that FIGURE 17 shows. With the
present embodiment, an on-line balance sheet may be
requested by organization, by product, or by customer.
The on-line report is produced for a specific
30   organization, product or customer hierarchy point and
displays the budget amounts for budget reporting periods
defined within the selected year and total year results.
In FIGURE 17, the run date represents the month, year,
and time the report was produced and the number of the
35   physical page for the report. The designator "Budget ID

1" indicates the budget identifier selected for this
report. The year, "1994," indicates the budget year
associated with Budget ID 1. The term "Budget ID 2"
indicates the budget identifier selected for comparison
5   and the year, "1996," associates with Budget ID 2. The
"hierarchy point" identifies the identity of the
organization, product, or customer hierarchy point being
reported followed by the description of that particular
point. The column descriptions include section headings
10 for assets, liabilities, and equity, one level amount
detailed under each of the specified amount hierarchy and
system-generated total lines. Budget reporting periods
indicate the amount of each budget reporting period in
the specified budget year based on the budget interval of
15 the selected budget year as defined in the budget
profile. The full year column for the Budget ID 1, which
in FIGURE 17 is "ZZBase" is the sum of the Budget ID 1
reporting period aggregate amounts within the Budget ID 1
year, 1995, divided by the number of days in the Budget
20 ID 1 processing year (with results rounded). The
reporting period aggregate amount is calculated using the
actual/actual annualization method. The Budget ID 2 full
year column represents the sum of Budget ID 2 reporting
period aggregate amounts within the Budget ID 2 year,
25 1996, divided by the number of days in the Budget ID 2
processing year (again, with results rounded). The
reporting period aggregate amount is calculated using the
actual/actual actualization method. The Budget ID 1
variance column, designated "ZZBase variance" represents
30 the sum of the Budget ID 1 reporting period aggregate
amounts within the Budget ID 1 year minus the sum of the
Budget ID 2 reporting period aggregate amounts within the
Budget ID 2 year (results being rounded). Furthermore,
the "%" column provides the budget variance amounts
35 calculated in the preceding column (before rounding)

divided by the sum of the Budget ID 2 year with the
result rounded to the nearest tenth.

   FIGURE 18 shows the auxiliary support facility
functions included with the present embodiment. Flow
chart 390 shows that on-line entry provides input to
intra-budget copy module 392 and inter-budget copy module
394. Intra-budget copy module 392 provides intra-budget
selection criteria 396. Intra-budget selection criteria
396 goes to intra-budget copy/move/delete process 398.
Inter-budget copy module 394 provides inter-budget copy
selection criteria 400. Inter-budget copy selection
criteria 400 goes to inter-budget copy process 402.
Budget profile data 404 relates to rate and basis point
add-on tables 406 and provides input to intra-budget
copy/move/delete process 398 and inter-budget copy
process 402. Inter-budget copy process 402 generates
Inter-budget Copy Request report 408 and relates with
budget calculation parameters 410 as well as BPS ledger
192. BPS ledger 192 may also associate with budget
profile data 404 and intra-budget copy/move/delete
process 398. Intra-budget request 412 comes from intra-
budget copy/move/delete process 398.

   Auxiliary support functions 390 are designed to
assist during day-two operations to provide both inter-
budget copy and intra-budget copy/move/delete features.
Inter-budget copy features include the creation of a new
budget using the characteristics and optionally the data
from an existing budget. Intra-budget copy/move/delete
features copying, moving, deleting selected budget values
within the budget. In the creation and maintenance of
budget information, facilities utilize existing budget
information for the creation of new information. For
example, when adding a new cost center whose budget data
is similar to an existing cost center, data may be copied
to the cost center, and then modified for the new cost

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center. Another example might be the requirement to
change data existing for a cost center from one cost
center number to another cost center number. In
addition, a need exists for copying an entire budget, or
5   parts of a budget, to a new budget. The new budget may
then be used to develop scenarios different from the
original budget.

For data modification within a single budget
identifier/year, either a copy, move or delete function
10   may be used. The copy function copies BPS ledger 192
data for a specified organization, product, or customer
identifier to a new organization, product, or customer
identifier. The move function changes an existing
organization, product, or customer identifier to a new
15   organization, product or customer identifier. The delete
function deletes BPS ledger 192 data for a specified
organization, product, or customer.

The inter-budget copy request facility copies data
from a source budget identifier to a destination budget
20   identifier. This facility extracts selected data to a
new budget where it can be manipulated independently of
the central budget. This provides the ability to use
different budget values and different rate scenarios.
Data may be characterized as data stores, controls, and
25   BPS ledger 192 data. Data stores available for copy
include base rates, non-base rates, and base point add-
ons.

Although the invention has been described in detail
herein with reference to the illustrative embodiments, it
30   is to be understood that this description is by way of
example only and is not to be construed in a limiting
sense. For example, the following exemplary modification
is well within the scope of the present invention. It is
to be further understood, therefore, that numerous
35   changes in the details of the embodiments of the

invention and additional embodiments of the invention, will be apparent to, and may be made by, persons of ordinary skill in the art having reference to this description. It is contemplated that all such changes

5   and additional embodiments are within the spirit and true scope of the invention as claimed below.

WHAT IS CLAIMED IS:

1.   An electronic budgeting and planning method for use in a data processing system including a plurality of interactive workstations for providing budgeting and planning information and decision tools for managing a financial institution, comprising the steps of:

        extracting a plurality of budgeting policies from a plurality of external budgeting policy external sources;

        configuring a budgeting and planning data structure in accordance with the plurality of budgeting policies;

        extracting a plurality of financial account data sets relating to financial accounts from a plurality of financial account data set sources;

        populating the budgeting and planning data structure with the extracted plurality of financial account data sets; and

        modifying the populated budgeting and planning data structure to refine the populated budgeting and planning data structure for creating a final budgeting and planning data structure
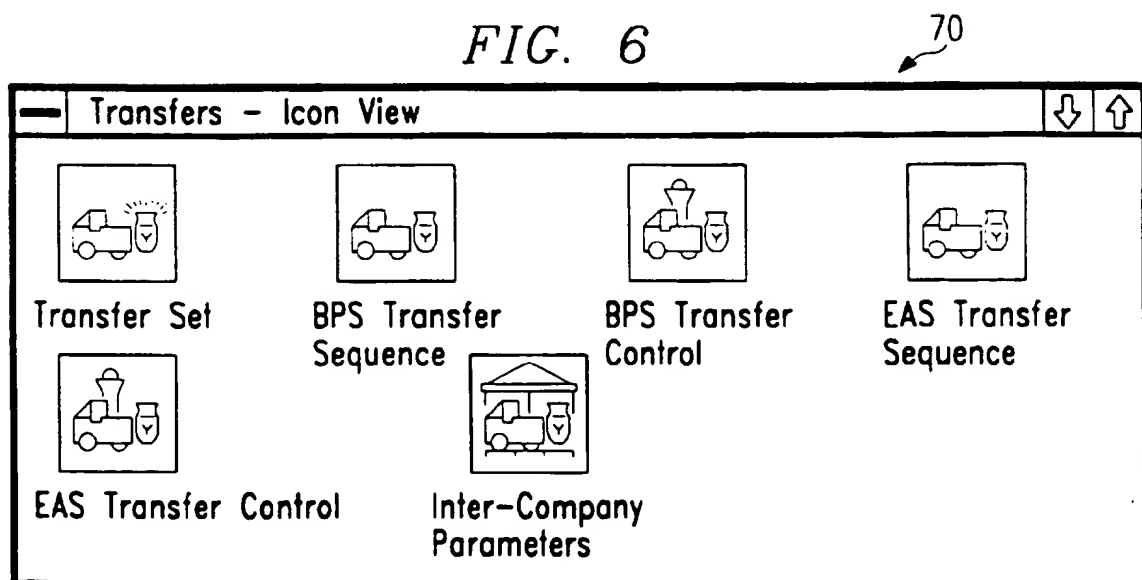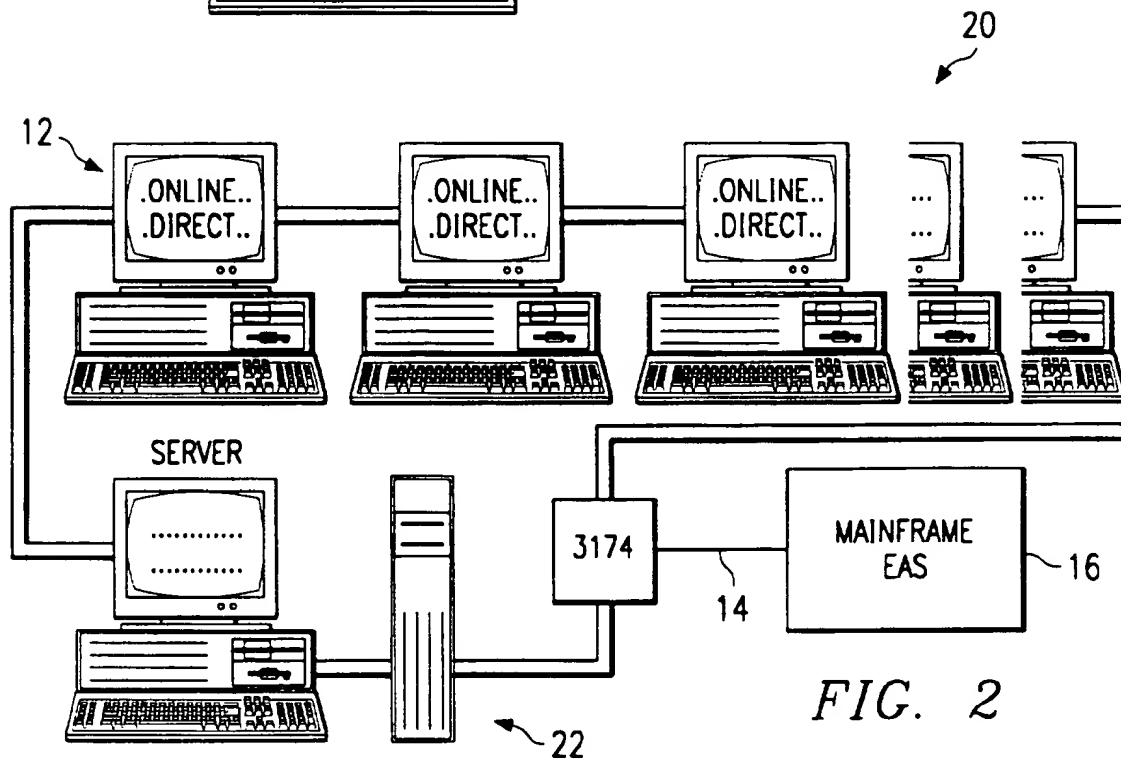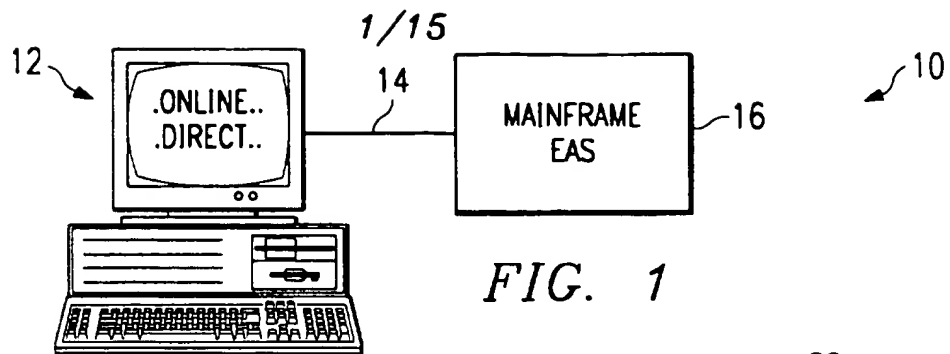
2.   The method of Claim 1, further comprising the step of distributing the final budgeting and planning data structure to the plurality of interactive workstations.

3.   The method of Claim 1, further comprising the step of integrating the budgeting and planning data structure with a profitability system associated with the financial institution.

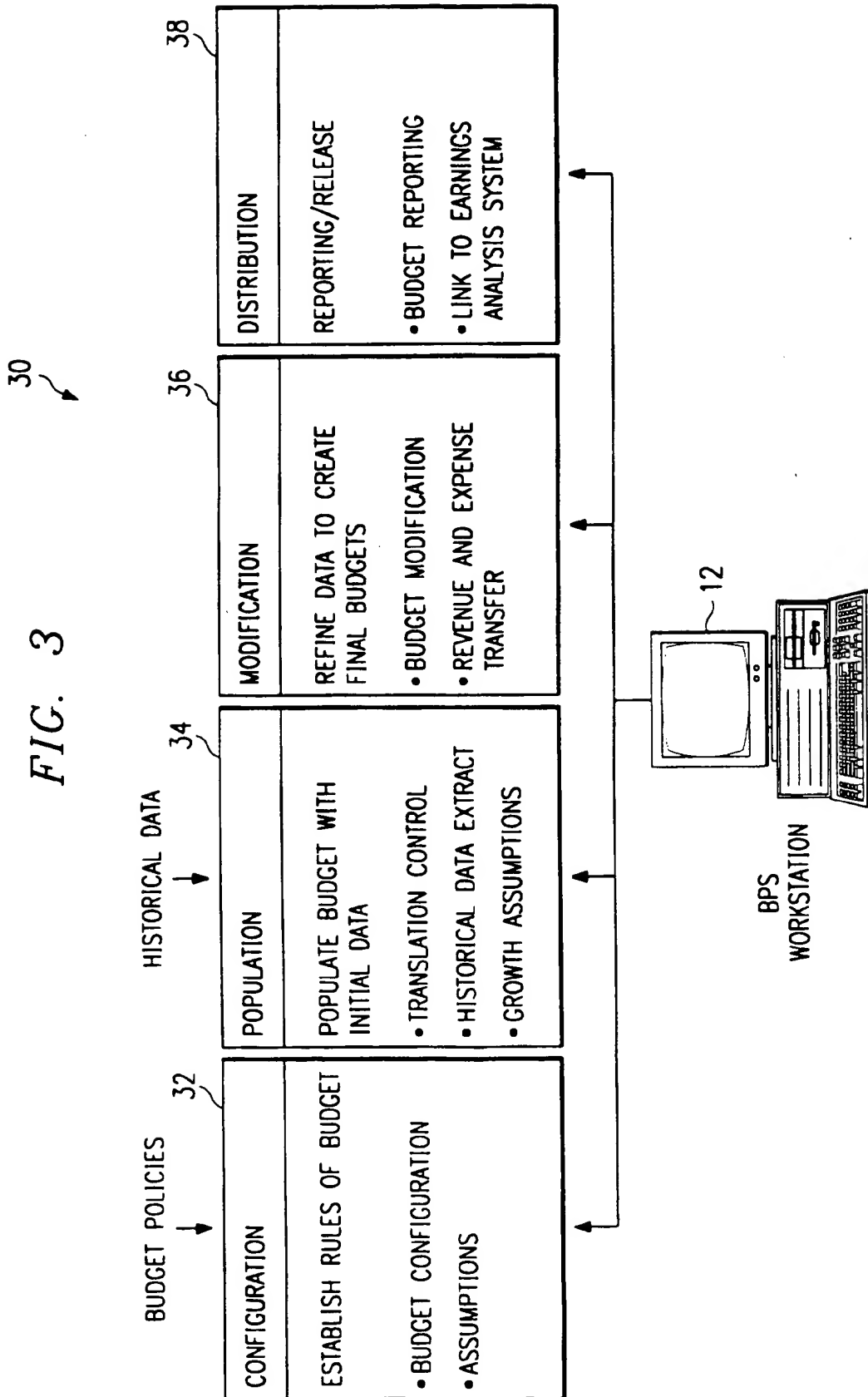4.   The method of Claim 1, further comprising the steps of generating a plurality of the budgeting and planning data structures and associating selected ones of the budgeting and planning data structures with one another.

5.   The method of Claim 1, further comprising the step of performing a plurality of net interest margin calculations relating to the plurality of financial account data sets.

6.   The method of Claim 1, further comprising the step of applying a plurality of growth assumptions associated with the plurality of financial account data sets in deriving the final budgeting and planning data structure.

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7.   An electronic budgeting and planning system for
use in a data processing system including a plurality of
interactive workstations for providing budgeting and
planning information and decision tools for managing a
5   financial institution, comprising the steps of:
an extract facility for extracting a plurality
of budgeting policies from a plurality of external
budgeting policy external sources and for extracting a
plurality of financial account data sets relating to
10   financial accounts from a plurality of financial account
data set sources;
a budget configuration facility for configuring
a budgeting and planning data structure in accordance
with the plurality of budgeting policies;
15   a budget population facility for populating the
budgeting and planning data structure with the extracted
plurality of financial account data sets;
a budget modification facility for modifying
the populated budgeting and planning data structure to
20   refine the populated budgeting and planning data
structure for creating a final budgeting and planning
data structure; and
a budget distribution facility for distributing
the final budgeting and planning data structure to the
25   plurality of interactive workstations.

8.   The system of Claim 7, further comprising an
integrating instruction set for integrating the budgeting
and planning data structure with a profitability system
30   associated with the financial institution.

9.   The system of Claim 7, further comprising
associating instructions for generating a plurality of
the budgeting and planning data structures and
associating selected ones of the budgeting and planning
5   data structures with one another.

10.   The system of Claim 7, further comprising net
interest margin calculation instructions for performing a
plurality of net interest margin calculations relating to
10   the plurality of financial account data sets.

11.   The system of Claim 7, further comprising
growth assumption instructions for applying a plurality
of growth assumptions associated with the plurality of
15   financial account data sets in deriving the final
budgeting and planning data structure.

12.   A method for forming an electronic budgeting
and planning system for use in a data processing system
including a plurality of interactive workstations for
providing budgeting and planning information and decision
5   tools for managing a financial institution, comprising
the steps of:
        forming an extract facility for extracting a
plurality of budgeting policies from a plurality of
external budgeting policy external sources and for
10   extracting a plurality of financial account data sets
relating to financial accounts from a plurality of
financial account data set sources;
        forming a budget configuration facility for
configuring a budgeting and planning data structure in
15   accordance with the plurality of budgeting policies;
        forming a budget population facility for
populating the budgeting and planning data structure with
the extracted plurality of financial account data sets;
        forming a budget modification facility for
20   modifying the populated budgeting and planning data
structure to refine the populated budgeting and planning
data structure for creating a final budgeting and
planning data structure; and
        forming a budget distribution facility for
25   distributing the final budgeting and planning data
structure to the plurality of interactive workstations.

13.   The system of Claim 12, further comprising the
step of forming an integrating instruction set for
30   integrating the budgeting and planning data structure
with a profitability system associated with the financial
institution.

66

14. The system of Claim 12, further comprising the step of forming associating instructions for generating a plurality of the budgeting and planning data structures and associating selected ones of the budgeting and planning data structures with one another.

15. The system of Claim 12, further comprising the step of forming net interest margin calculation instructions for performing a plurality of net interest margin calculations relating to the plurality of financial account data sets.

16. The system of Claim 12, further comprising the step of forming growth assumption instructions for applying a plurality of growth assumptions associated with the plurality of financial account data sets in deriving the final budgeting and planning data structure.

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FIG. 1

FIG. 2

FIG. 6

FIG. 3

30

CONFIGURATION	POPULATION	MODIFICATION	DISTRIBUTION
ESTABLISH RULES OF BUDGET	POPULATE BUDGET WITH INITIAL DATA	REFINE DATA TO CREATE FINAL BUDGETS	REPORTING/RELEASE
•BUDGET CONFIGURATION	•TRANSLATION CONTROL	•BUDGET MODIFICATION	•BUDGET REPORTING
•ASSUMPTIONS	•HISTORICAL DATA EXTRACT	•REVENUE AND EXPENSE TRANSFER	•LINK TO EARNINGS ANALYSIS SYSTEM
	•GROWTH ASSUMPTIONS		

32

34

36

38

BUDGET POLICIES →

HISTORICAL DATA →

BPS WORKSTATION

12

3/15

FIG. 4   40

| ▬ | Ledger Detail | ⇩ ⇧ |

Detail   Help

Budget ID: 44   Starting year: Category: 50

Organization   42

Company ID: Unit ID: 52   [OK]
46   [Cancel]
List   [Maintenance...]
Product ID: Customer ID: [Save]
Find   [More]
Amount ID: 48   54

Category 58   Level   Amount ID   Description

FIG. 5   60

| ▬ | Budget and Planning – Icon View | ⇩ ⇧ |

Logan DB/2   Budget Profile   Ownership   Annualization Method   Accrual Method   Base Rate

Funding Control   Ledger Debit 62   Bal Sheet Bal Control   Non-Base Rate   Non-Base Rate Assigment

Hierarchical Ledger Maint   Online Inc Stmt Rpt Def   Online Bal Sheet Rpt Def   Basis Point Add On

Budget Release Control   Target Balance Group   Linked Amount   Net Interest Margin

Growth Assumptions   Report Selection Criteria   Spreadsheet Upload Request   Intra-Budget Requests
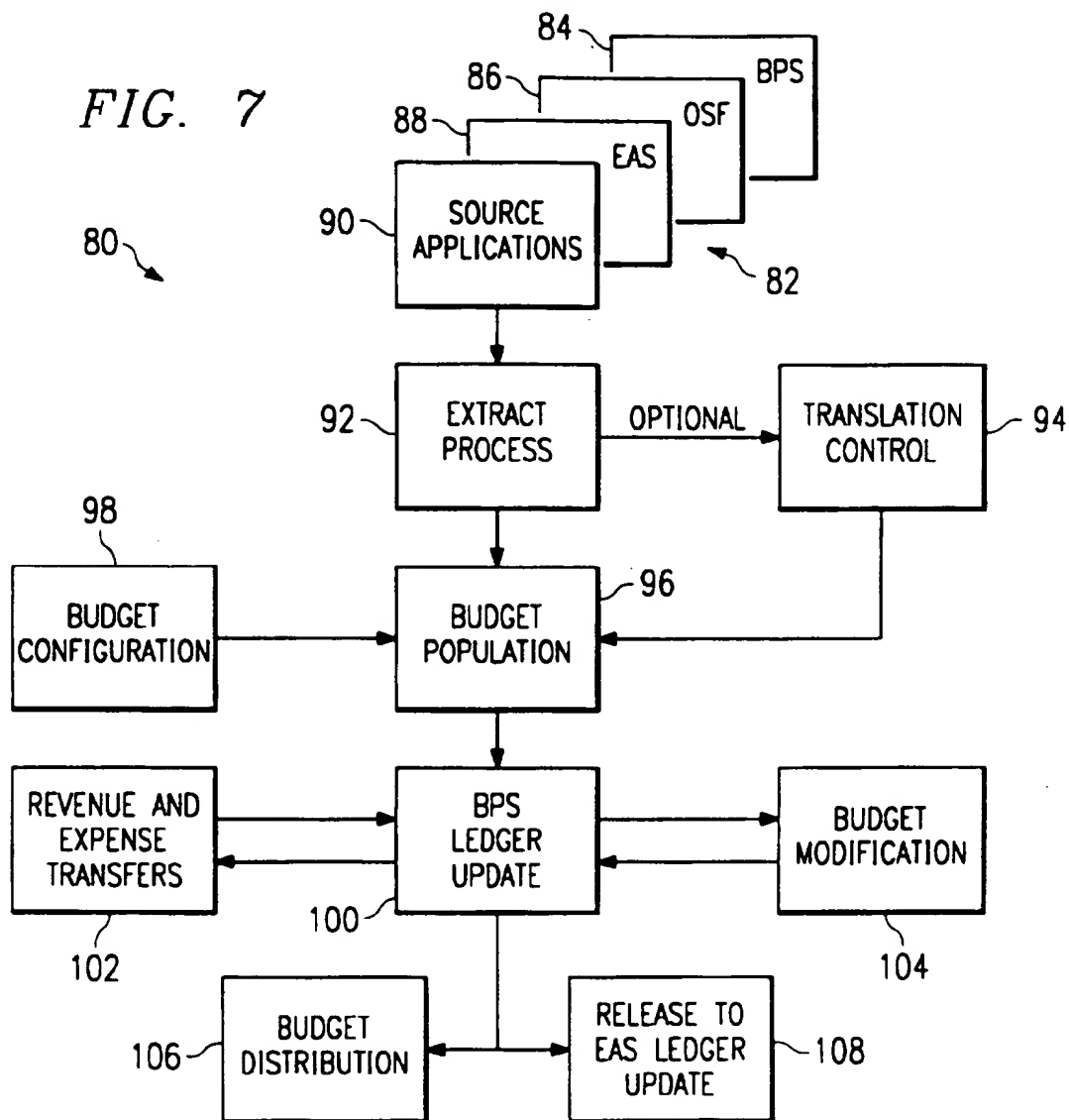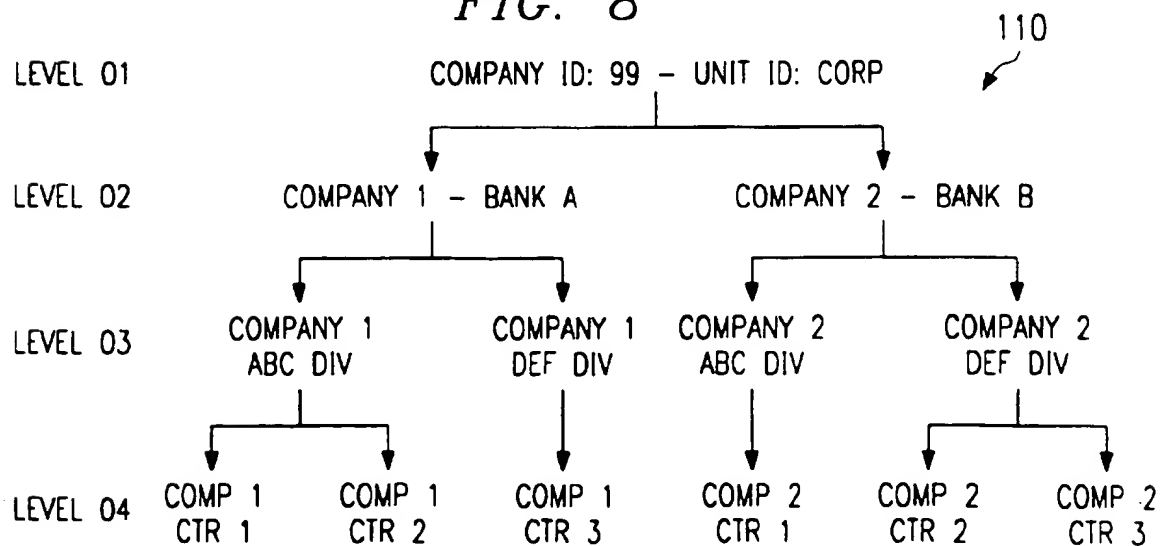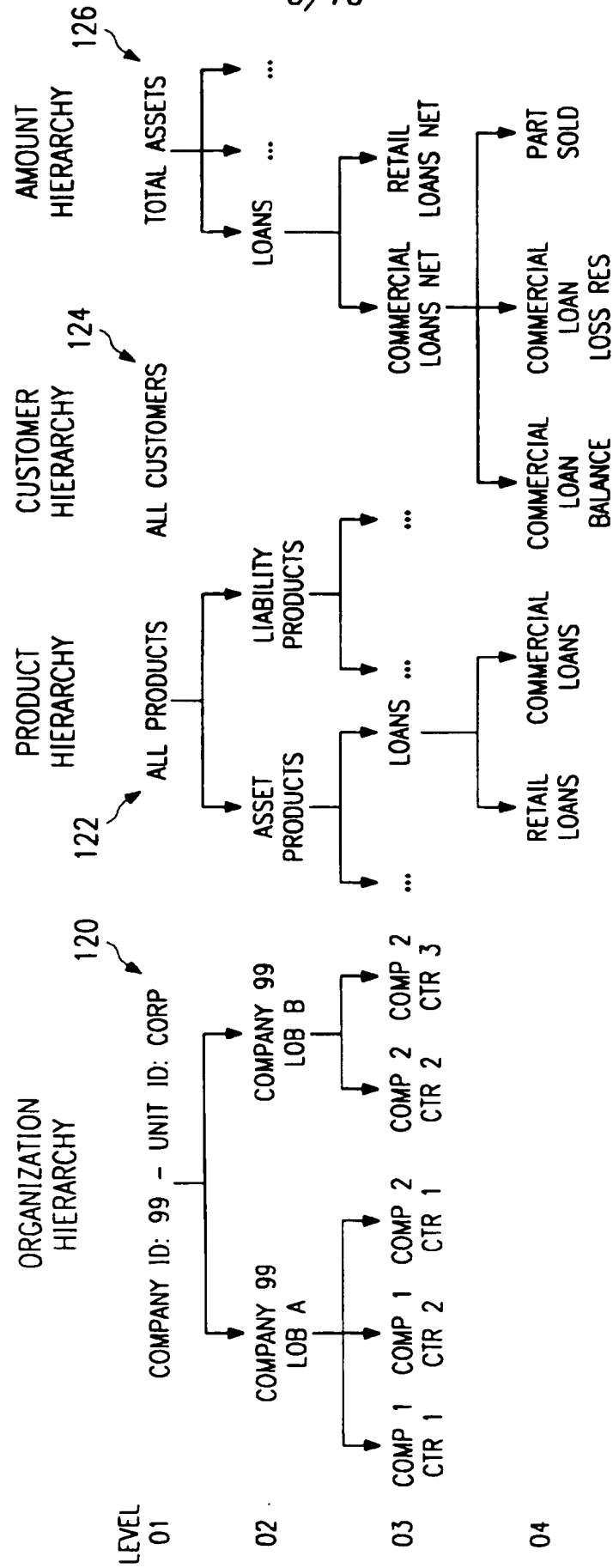
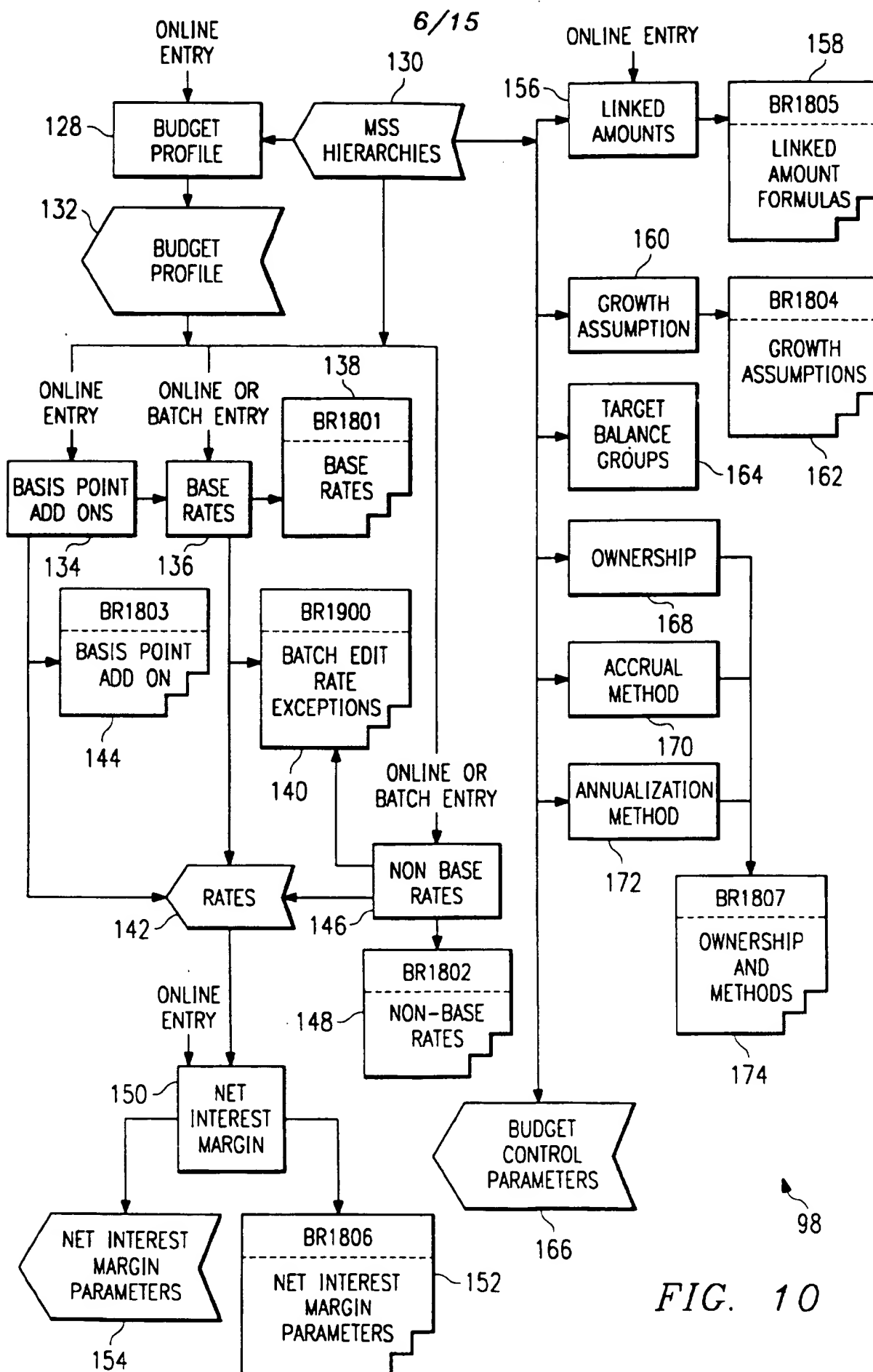Inter-Budget Copy   Population Extract

4/15

FIG. 7

FIG. 8

LEVEL 01   COMPANY ID: 99 — UNIT ID: CORP

LEVEL 02   COMPANY 1 — BANK A   COMPANY 2 — BANK B

LEVEL 03   COMPANY 1   COMPANY 1   COMPANY 2   COMPANY 2
           ABC DIV   DEF DIV   ABC DIV   DEF DIV

LEVEL 04 COMP 1   COMP 1   COMP 1   COMP 2   COMP 2   COMP 2
          CTR 1   CTR 2   CTR 3   CTR 1   CTR 2   CTR 3

5/15

FIG. 9

ORGANIZATION HIERARCHY — 120

PRODUCT HIERARCHY — 122

CUSTOMER HIERARCHY — 124

AMOUNT HIERARCHY — 126

ORGANIZATION HIERARCHY (120)

LEVEL 01: COMPANY ID: 99 – UNIT ID: CORP

02: COMPANY 99 LOB A / COMPANY 99 LOB B

03: COMP 1 CTR 1, COMP 2 CTR 2, COMP 2 CTR 1 / COMP 2 CTR 2, COMP 2 CTR 3

PRODUCT HIERARCHY (122)

ALL PRODUCTS

ASSET PRODUCTS / LIABILITY PRODUCTS

... / LOANS / ... / ...

LOANS → RETAIL LOANS, COMMERCIAL LOANS

CUSTOMER HIERARCHY (124)

ALL CUSTOMERS

AMOUNT HIERARCHY (126)

TOTAL ASSETS → ... / ... / LOANS

LOANS → COMMERCIAL LOANS NET / RETAIL LOANS NET

COMMERCIAL LOANS NET → COMMERCIAL LOAN BALANCE / COMMERCIAL LOAN LOSS RES / PART SOLD

6/15

FIG. 10

7/15

FIG. 11

FIG. 12

FIG. 13

FIG. 14

FIG. 15A

FROM
FIG. 15A

A

322   324   338

POSTING
INPUT
RECORDS

EAS
GENERATION
OF POSTING
INPUT

BPS
GENERATION
OF POSTING
INPUT

YR1834

RET POSTING
JOURNAL BY
ORGANIZATION

EAS LEDGER
UPDATE

YR1835

RET POSTING
JOURNAL BY
INSTRUCTION

OPTIONAL

344

(OPTIONAL)
EAS RET
BILLING
FILE

336

BPS
GENERATED
INPUT

(OPTIONAL)
BPS RET
BILLING
FILE

340

342

BPS LEDGER
UPDATE

YR1835

RET POSTING
JOURNAL BY
INSTRUCTION

YR1834

RET POSTING
JOURNAL BY
ORGANIZATION

328   326

OPTIONAL

FTP
ALLOCATED
BALANCES
FILE

YR9996

RET - FTD
AUDIT
JOURNAL

YR9994

RET - FTP
ACTIVITY
JOURNAL

334

FTP
PROCESSING

332   330

FIG. 15B

FIG. 16

BP9010   *14/15*   RUN DATE 03/02/94 13:11   PAGE 1
ORGANIZATION BALANCE SHEET
(000)
BUDGET ID 1:   ZZBASE   YEAR: 1994
BUDGET ID 2:   BUD1   YEAR: 1996

HIERARCHY POINT   999   EASENT
EAS ENTERPRISES
EAS ENTERPRISES

| 01/31/94 | 02/28/94 | 03/31/94 | 04/30/94 | ZZBASE | BUD1 | ZZBASE | % |
| 05/31/94 | 06/30/94 | 07/31/94 | 08/31/94 | FULL | FULL | VARIANCE | |
09/30/94	10/31/94	11/30/94	12/31/94	YEAR	YEAR		

ASSETS
  EARNING ASSETS
26,334,995 26,590,611 26,610,041 27,509,232
27,462,822 27,077,823 28,930,194 29,309,367
30,112,827 30,547,236 31,285,863 31,552,463 28,622,658 9,785,213 18,837,445 192.5
    NON-EARNING ASSETS
 2,505,981 2,705,152 2,661,079 2,620,377
 2,616,319 2,852,885 3,214,616 3,077,617
 2,994,725 2,976,856 2,880,658 2,890,915   2,834,105 1,744,502   1,089,603 62.5

TOTAL ASSETS
28,840,976 29,295,763 29,271,120 30,129,609
30,079,141 29,930,708 32,144,810 32,386,984
33,107,552 33,524,092 34,166,521 34,443,378 31,456,763 11,529,715 19,927,048 172.8

AVAILABLE FUNDS
  AVAILABLE DEPOSITS
21,813,432 22,259,323 22,313,717 22,364,837
22,263,791 22,260,250 23,839,611 24,122,684
24,518,172 25,129,191 25,140,977 24,990,691 23,425,903 7,285,346 16,140,557 221.5
  BORROWINGS
 3,959,996 3,857,511 3,709,465 3,867,530
 4,092,371 3,708,359 3,745,235 3,742,921
 3,984,344 3,956,987 4,610,715 5,141,288   4,032,698 4,220,998   188.300- 4.5-
  MISC LIABILITIES
   378,536   380,513   422,614   443,034
   569,932   398,649   557,193   684,965
   767,887   665,476   662,352   671,722   551,440   0   551,440   0.0
  LIABILITIES
 2,058,503 2,144,305 2,201,232 2,141,337
 2,060,973 2,440,313 2,761,250 2,589,956
 2,600,835 2,522,460 2,500,089 2,479,200   2,376,434 1,523,365   853,069 56.0
  CAPITAL
 1,542,401 1,563,184 1,531,333 1,827,218
 1,605,268 1,632,602 1,755,207 1,775,742
 1,773,323 1,790,613 1,806,774 1,727,190   1,694,595   858,999   835,596 97.3

TOTAL AVAILABLE FUNDS
29,752,868 30,204,836 30,178,361 30,643,956
30,592,335 30,440,173 32,658,496 32,916,268
33,644,561 34,064,727 34,720,907 35,010,091 32,081,071 13,888,708 18,192,363 131.0

END OF REPORT BP9010   *FIG. 17*

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390

ONLINE
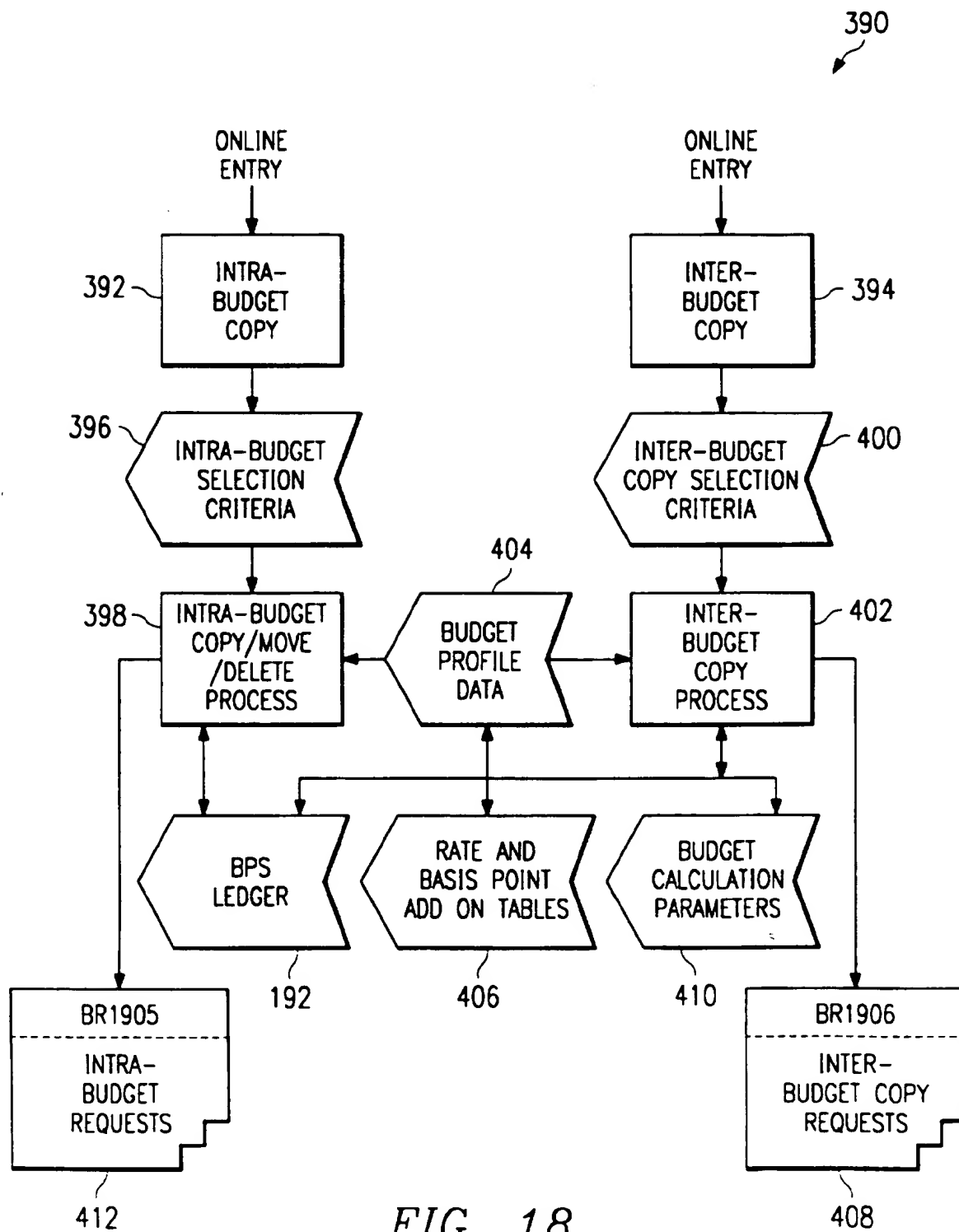ENTRY

ONLINE
ENTRY

392 — INTRA-
BUDGET
COPY

INTER-
BUDGET
COPY — 394

396 — INTRA-BUDGET
SELECTION
CRITERIA

INTER-BUDGET
COPY SELECTION
CRITERIA — 400

404

398 — INTRA-BUDGET
COPY/MOVE
/DELETE
PROCESS

BUDGET
PROFILE
DATA

INTER-
BUDGET
COPY
PROCESS — 402

BPS
LEDGER

RATE AND
BASIS POINT
ADD ON TABLES

BUDGET
CALCULATION
PARAMETERS

192

406

410

BR1905

INTRA-
BUDGET
REQUESTS

BR1906

INTER-
BUDGET COPY
REQUESTS

412

408

FIG. 18

International application No.
PCT/US96/04290

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :GO6F 157:00

US CL :364/401, 406, 408; 395/12, 157, 159

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 364/401, 406, 408; 395/12, 157, 159

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category°	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A,P	US, A, 5,442,731 (TANAKA ET AL.) 15 AUGUST 1995, THE ABSTRACT.	1-16
A	US, A, 5,321,620 (TANAKA ET AL.) 14 JUNE 1994, NOTE THE ABSTRACT.	1-16
A	US, A, 4,953,085 (ATKINS) 28 AUGUST 1990, NOTE THE ABSTRACT.	1-16
A	US, A, 4,942,527 (SCHUMACHER) 17 JULY 1990, NOTE COLUMN 7, LINE 60 TO COLUMN 16, LINE 13.	1-16
A	GOVERNMENT FINANCE REVIEW, V9, N6, ISSUED DECEMBER 1993, BESTOR, MIKE, "NEGOTIATING SKILLS FOR BUDGET OFFICERS", P15(5). NOTE THE ENTIRE DOCUMENT.	1-16

[X] Further documents are listed in the continuation of Box C.   [ ] See patent family annex.

°	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be part of particular relevance		
"E"	earlier document published on or after the international filing date	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed	"&"	document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
20 MAY 1996	14 JUN 1996

Name and mailing address of the ISA/US	Authorized officer
Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	DONALD McELHENY
Facsimile No. (703) 305-3230	Telephone No. (703) 305-3894

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SAVINGS BANK JOURNAL, V59N3, ISSUED MAY 1978, "BUDGETING AND FINANCIAL PLANNING TECHNIQUES", PP30-32. NOTE THE ENTIRE DOCUMENT.	1-16